

SHOULD THE COMMON LAW SYSTEM WELCOME ARTIFICIAL INTELLIGENCE: A CASE STUDY OF CHINA’S SAME-TYPE CASE REFERENCE SYSTEM

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I. INTRODUCTION

China has recently embraced a national use of “big data” through the implementation of judicial reforms that utilize new technology. These technological reforms have turned China’s judicial system into one closely resembling a common law system. Because of this, China’s use of artificial intelligence (AI) in the judicial setting provides a case study for general implementation of AI in common law systems.

A. Is China Establishing a Common Law System?

Modern China’s case law begins in the 1980s. In 1985, China’s highest court, the Supreme People’s Court of China (SPCC) began to publish “typical cases” (dianxin anli, 典型案例) in its official publication,

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the Gazette of SPCC.¹ Since then, there have been debates about whether or not to adopt “precedent” into China’s legal system. Against some resistance, SPCC has made consistent efforts to increase the role of prior cases in China’s legal system, leading to the establishment of the guiding case system in 2010.² That year, the SPCC issued the *Provisions on Case Guidance*, which established the guiding case law system for mainland China. Guiding cases (zhi dao xing an li, 指导性案例) are cases that were originally decided by courts at different levels and then selected, edited, and reissued to all courts by SPCC as quasi-binding. These cases are only quasi-binding because they are not recognized as law, cannot be cited as the main basis for a judgment, and judges can decline to follow these cases without specifying reasons. Guiding cases have generated significant discussion among scholars and officials, mostly surrounding their similarity to precedent cases in common law regimes.³ Prior studies note that, although guiding cases have some similarity to common law precedent cases, significant differences remain, such as their non-binding nature, their origin with SPCC rather than the deciding court,⁴ and their relatively short legal reasoning section. Yet, these cases still promote judicial uniformity even through the lens of the civil law regime.⁵

This article examines a series of systems and tools called the Same-Type Case Reference system (STCR).⁶ STCR was started in 2015, and is layered on top of the guiding case system. Unlike guiding cases, STCR aims to make prior cases binding, rather than quasi-binding, and thus, is a further step towards creating a type of common law in China. STCR is composed of a series of systems that work together to ensure judges adhere to prior decisions made by their own courts (or superior courts) on cases that are similar to the case before them. These interconnected systems include: a national database of published judicial opinions;⁷ software programs that make it possible and convenient to search, analyze, and compare millions of Chinese judgments;⁸ and new

¹ These “typical cases” are issued by the SPCC as a teaching tool for lower courts.

² Mark Jia, *Chinese Common Law? Guiding Cases and Judicial Reform*, 129 HARV. L. REV. 2213, 2216–20 (2016).

³ *Id.*

⁴ A deciding court is the court that issued the original opinion.

⁵ *Id.* at 2231–33.

⁶ In Chinese this is called “类案参考系统” (lei an can kao xi tong).

⁷ SPCC’s Regulations on the Publication of Judicial Opinions on Internet by People’s Courts, revised in 2016 and effective on Oct. 1, 2016.

⁸ Such software systems include FaXin law trust (法信) (<http://www.faxin.cn>), developed by SPCC, which was launched April 2016. Liang Xiaohui, *China’s Supreme Law “Legal*

judicial accountability rules that require judges to follow previously decided cases of the same type.

In 2015, SPCC's *Several Opinions on Improving the Judicial Accountability System of People's Courts (Opinions on Accountability)* first formalized a judicial accountability system.⁹ The details of the system were further articulated in 2017 by SPCC's *Preliminary Opinions on the Implementation of the Judicial Accountability System (Implementation Opinions on Accountability)*.¹⁰ Because of these two opinions, judges are now legally required to follow same-type cases decided by their courts and superior courts when deciding any new case¹¹ unless the judges explain and obtain a superior judge's approval before deviating from previously decided same-type cases.¹² If the judges do not follow these rules, they can be disciplined for failing to comply.¹³ With these new judicial accountability rules in place, China is also slowly adding software components to STCR in each province in order to further control judicial conformance with same-type cases.

Compared with the previous guiding case system, STCR is a much more significant step towards a common law regime and deserves examination. Interestingly, China's motivation in implementing this new common law-type system is not to increase judicial authority. Rather, China hopes to increase judicial independence while also retaining

Letter" Platform Online, CHINA NEWS NETWORK (Mar. 31, 2016, 9:49 PM), <http://money.163.com/16/0331/21/BJH3QO0G00253B0H.html> [<https://perma.cc/2PGL-RHR2>]. Another system is called ZhiShen (Smart Trial, 智审). See *Dean of Hebei High Court Introduced the Information Innovation of the Court*, LEGAL DAILY (Nov. 18, 2016), http://www.legaldaily.com.cn/locality/content/2016-11/18/content_6882831.htm [<https://perma.cc/4AAR-QWRX>]. Further discussion of these systems appears in Part III of this article.

⁹ *Several Opinions of SPCC on Improving the Judicial Accountability System of People's Courts*, effective on September 21, 2015. In China, an opinion of the SPCC includes rules for the judicial system.

¹⁰ *Preliminary Opinions of SPCC on the Implementation of the Judicial Accountability System*, effective on August 1, 2017.

¹¹ *Opinions of the Supreme People's Court on the Judicial Accountability System*, art. 8; *Opinions of the Supreme People's Court on the Implementation of the Judicial Accountability System*, art. 39 & 40(1).

¹² *Opinions of the Supreme People's Court on the Judicial Accountability System*, art. 24(3); *Opinions of the Supreme People's Court on the Implementation of the Judicial Accountability System*, art. 16(4), 40(2), (3), (4), 43, 48, & 64(3).

¹³ For the punishment, see Point Two, the *Opinions of SPCC and the Supreme People's Procuratorate of China (SPPC) on Establishing the Disciplinary System for Judges and Prosecutors (Opinions on Punishment)*, effective Oct. 12, 2016.

supervision over judges.¹⁴ Understanding the structure and function of STCR in China provides a perspective on common law systems that may provide insight into possible transformations in common law regimes through the use of technology.

B. The Growth of Technology in the Judicial System

The establishment and function of STCR is realized, in part, through the intelligentization of China's judicial systems, i.e. equipping China's judicial systems with intelligent technologies. This process includes building software programs that digitalize, manage, and establish applications of judgments through legal research services as well as statistical analyses and comparisons. AI allows these software programs to suggest decisions, calculate possible sentences for specific crimes or scenarios, and summarize typical compensation. For example, a judge can upload an electronic complaint or hearing record, and the program will study the complaint or record and compare the record with previously decided judgments to find the same-type case reference files. The machines are "trained" through nearly forty million stored judgments and are able to compare newly loaded complaints with older ones. Then, the system selects same-type cases. Once the correct same-type cases are found, the program will generate preliminary judgments with facts extracted from uploaded complaints or records and reasoning and conclusions learned from same-type case decisions.¹⁵

In China, STCR is not the only AI system used in the legal context. Prosecutors have tried to use AI programs to help make prosecutorial decisions, and policemen have tried to use some AI programs to predict and investigate crimes.¹⁶ Additionally, the city of Hangzhou has established cybercourts, through which litigants submit their documents

¹⁴ Such a motive is not explicitly expressed but can be read from the facilitating requirements and the connection to the disciplinary system as well as reforms enhancing judicial authority. This is elaborated upon in Part II of this article.

¹⁵ The software system called "artificial intelligent reference of same-type-cases" system (类案智慧推送系统) went online January 2018. *The Supreme Court of Wisdom Court Navigation System and the Class Intelligent Push System are Online Today*, SOHU (Jan. 5, 2018), http://www.sohu.com/a/215006410_362042 [<https://perma.cc/5NRS-WBU8>].

¹⁶ The SPPC has issued the 2017-2020 Big Data Action in Procuratorates Guidance in June 2017. *See Promote Big Data Applications to Create "Smart Policing,"* LEGAL DAILY (June 6, 2017), http://www.legaldaily.com.cn/index/content/2017-06/12/content_7201213.htm [<https://perma.cc/AKE6-X9RY>].

and participate in trials over the Internet without once appearing in court.¹⁷ In other cities, robot guides are positioned in courts and prosecutors' offices. The robot guides are capable of having simple conversations with litigants to help them file complaints and to provide procedural assistance.¹⁸ Other AI machines answer phone calls or online queries.¹⁹ The development of these systems was made possible by China's national strategy to embrace "big data."²⁰

Similarly, the U.S. has seen the introduction of AI machines in both the private and public sector. The ability of these machines to make certain decisions independently with little human intervention, such as relying upon AI to select who shall be investigated by the Internal Revenue Service (IRS) is alarming.²¹ Despite these alarms, intelligent financial advisors,²² algorithmic consumers,²³ robot regulators,²⁴ robot armies,²⁵ intelligent policemen,²⁶ machine witnesses,²⁷ and robot lawyers²⁸

¹⁷ Hou Meng, *The Impact of Internet Techniques over Judiciary* (互联网技术对司法的影响), 1 J.L. APPLICATION (法律科学) (2018).

¹⁸ See recent news regarding legal robots: *Today I am on Duty: Smart Legal Robot and Peace Magic Weapon in Shenyang*, CHINA NEWS NETWORK (Mar. 3, 2017), <http://news.163.com/18/0301/17/DBR2H62000187V5.html> [<https://perma.cc/5D2E-335Y>].

¹⁹ *Id.*

²⁰ China's State Council issued the Promotion of Big Data Development Action Outlines in 2015 and later the Industry Ministry issued the 2016–2020 Plan for the Development of the Big Data Industry in 2016. Several times at essential meetings, President Xi has emphasized the importance of carrying out such a national strategy. See *Notice of the State Council on Printing and Distributing the Action Outline for Promoting Big Data Development*, GOV'T INFO. DISCLOSURES (Sept. 5, 2015), http://www.gov.cn/zhengce/content/2015-09/05/content_10137.htm [<https://perma.cc/RAZ4-H5UQ>]; *Big Data Industry Development Plan (2016–2020)*, MINISTRY INDUSTRY & INFO. TECH. CHINA (Jan. 17, 2017), <http://www.miit.gov.cn/n1146290/n4388791/c5465401/content.html> [<https://perma.cc/MPA6-3CKK>]; *Promote the Implementation of National Big Data Strategy*, PEOPLE'S NETWORK (Dec. 11, 2017, 8:45 AM) <http://world.people.com.cn/n1/2017/1211/c1002-29697998.html> [<https://perma.cc/92PD-68QP>].

²¹ Cary Coglianese & David Lehr, *Regulating by Robot: Administrative Decision Making in the Machine-Learning Era*, 105 GEO. L.J. 1147, 1163 (2017).

²² John Lightbourne, *Algorithms & Fiduciaries: Existing and Proposed Regulatory Approaches to Artificially Intelligent Financial Planners*, 67 DUKE L.J. 651, 652–53 (2017).

²³ Michal S. Gal & Niva Elkin-Koren, *Algorithmic Consumers*, 30 HARV. J.L. & TECH., 309, 310 (2017).

²⁴ Joshua Kroll, et al., *Accountable Algorithms*, 165 U. PA. L. REV. 633, 636 (2017).

²⁵ Ignatius Michael Ingles, *Regulating Religious Robots: Free Exercise and RFRA in the Time of Superintelligent Artificial Intelligence*, 105 GEO. L.J. 507, 508–10 (2017).

²⁶ Coglianese & Lehr, *supra* note 21, at 1167–75.

already exist, causing much debate in the legal community.²⁹ But little serious academic discussion is ongoing about the application of AI in judicial decision-making, and the discussions in the news media consider such application absurd.³⁰

Many people in the U.S. find the prospect of a robot judge unfathomable.³¹ It seems technically impossible to have machines “find out” the patterns of “recurring situational problems”³² and make sound judgments after considering numerous normative values without specification of these values and patterns at the front-end design phase of the machines.³³ Additionally, even if these values could be specified beforehand, many still feel it is legally and morally unsound to have a robot decide how to proceed in a case.³⁴ However, in the private sector, algorithmic dispute moderators are already being used on online trading platforms such as eBay and Amazon, and “blockchain adjudicators” are used on platforms such as OpenBazaar and Buterin.³⁵ Given the prevalence of AI in private business, its incorporation in courts and the legal system should be explored.

Unlike the U.S., China has no strong resistance to equipping its courtrooms with algorithmic machines and has, in fact, welcomed them.³⁶ China, with its large population and strong economy, has the potential to provide an important case study on the macro effects of implementing a judiciary which partly relies on computer automated decisions. Moreover,

²⁷ See generally Andrea Roth, *Machine Testimony*, 126 YALE L.J. 1972 (2017).

²⁸ For example, LawGeex claims its artificial intelligence is nine percent more accurate at finding risks in non-disclosure agreements compared to experienced lawyers. See *AI vs. Lawyers: The Ultimate Showdown*, LAWGEEX (Feb. 26, 2018), <https://blog.lawgeex.com/ai-more-accurate-than-lawyers/#more-4058> [<https://perma.cc/7274-2ZEE>].

²⁹ Robots in this article refer to computerized agents that can accomplish certain tasks intelligently.

³⁰ Although there has been speculation that there may be a chief justice robot in the future, such speculations are intended as absurdities. See Sean Braswell, *All Rise for Chief Justice Robot!*, OZY (June 7, 2015), <http://www.ozy.com/immodest-proposal/all-rise-for-chief-justice-robot/41131> [<https://perma.cc/94EQ-4HDR>].

³¹ Coglianese & Lehr, *supra* note 21, at 1152.

³² LLEWELLYN, *THE COMMON LAW TRADITION: DECIDING APPEALS* 73 (1960).

³³ Kroll, et al., *supra* note 24, at 695–96. It is difficult to specify or calculate normative values in algorithms for machines to “understand” them.

³⁴ Coglianese & Lehr, *supra* note 21, at 1152.

³⁵ *Id.*; Jeremy M. Sklaroff, *Smart Contracts and the Cost of Inflexibility*, 166 U. PA. L. REV. 263, 300 (2017).

³⁶ Alison Xu, *Chinese Judicial Justice on the Cloud: A Future Call or a Pandora’s Box? An Analysis of the “Intelligent Court System” of China*, 26 INFO. COMM’N. TECH. LAW 59, 61–63 (2017).

with the implementation of STCR, China's case system is becoming more like the common law system, making the Chinese and American judicial systems more comparable than ever before. The STCR could be seen as a stricter form of the common law system by making precedents binding, since this leaves judges with less decision-making freedom. If the algorithms work satisfactorily in China, STCR may help shed light on how a classic common law system could be transformed through the use of technology like AI.

Accordingly, Part II of this article discusses the characteristics of China's STCR and the system's underlying rationale. This establishes the basis to compare STCR with common law systems in Part III. After concluding that STCR has the same central characteristics as a common law system, Part IV analyzes STCR as an experiment to integrate AI into the common law and how STCR's AI differs from previous in-court machines and scientific instruments. Finally, Part V provides a taxonomy of AI applications in judicial tasks and analyzes how the possible substitution of human judges in certain categories of tasks may impact the systematic function of common law. Part VI of this article concludes by advocating for the application of AI in judicial decision making and calls on the judiciary worldwide to actively participate in the development of AI.

II. CHINA'S STCR SYSTEM: CHARACTERISTICS AND UNDERLYING RATIONALE

STCR represents a technological effort to massively overhaul certain aspects of the Chinese judicial system. This section begins by explaining some of the problems in the existing system that STCR seeks to alleviate. These problems include a combination of the lack of a case database, large amounts of case data, and individual judges' resistance to change. This section then explains how STCR as a technology, and the procedures for its implementation, have sought to deal with these issues, taking account of both its advantages and disadvantages.

A. Establishing a Database of Judgments and Research Systems

The establishment of STCR is a holistic project involving the formation and coordination of multiple systems—the most important is the database system of Chinese judgments. Case reporter systems are fundamental because they record court case decisions, making later

reference possible and convenient. The new systems in China are similar to Westlaw and LexisNexis, which digitize American court decisions and provide powerful online research engines. Until recently, China, as a traditional statutory system, did not have a case reporter system, and Chinese courts did not publish their decisions for the general public. Now, under pressure from SPCC, Chinese courts have begun to publish their case decisions.³⁷ SPCC established a uniform case decision website for individual courts nationwide to upload their judgments in a timely manner.³⁸ While not all cases are publicly available, the national strategy on improving national governance has made large strides to improve the availability of published cases in the Internet era.³⁹ The site already has more than sixty-six million publicly available judgments, most of which were decided between 2014 and 2019.

The utility of judgments uploaded by courts is sub-optimal if they are not organized and indexed into a powerful research toolkit. According to the annual work reports, China's courts decide more than twenty million cases each year.⁴⁰ Even if a frontline judge⁴¹ in a district court only looks at prior decisions within his or her own court system, there are, on average, more than 30,000 cases made by his or her own court, 40,000 cases by his or her appellate court, 100,000 cases by the high court in his or her province, and 110,000 cases from SPCC during the last five years.⁴² In order to utilize the new database of judgments, public-private partnerships were established in which SPCC and Supreme People's Procuratorate of China provide data to authorized private companies⁴³—

³⁷ See SPCC's Provisions on Issuance of Judgments on Internet for People's Courts (issued Nov. 2013, revised Aug. 2016, and effective Oct. 1, 2016).

³⁸ See CHINA JUDGEMENTS ONLINE, <http://wenshu.court.gov.cn/> [<https://perma.cc/5KR8-K3LA>].

³⁹ *Id.*

⁴⁰ For the annual work reports of the courts, please see SPCC's website: www.court.gov.cn (last visited Apr. 17, 2019).

⁴¹ A judge who decides cases, as compared to judges with more administrative roles.

⁴² These are simple calculations based on the annual work reports of the courts. Because China's society and law are still changing quickly and courts primarily began publishing judgments in 2013, frontline judges normally refer to cases made within the last five years.

⁴³ Although more than forty million case decisions are publicly available on SPCC's case website, many decisions are still not online. (China's courts decide more than twenty million cases each year.) However, SPCC and SPPC have internal case systems that have all of the case decisions as well as the relevant case materials, including complaints, legal proceeding records, and internally-submitted case closure reports where judges summarize their thoughts and concerns. The SPCC and SPPC provide technology companies with conditional access to these internal databases, so they can train machines

such as ZhiShen and FaXin—entrusting them with the development of software systems specifically for courts to make the intelligent analysis of the judgments possible.⁴⁴ These new technology companies paved the way for full implementation of STCR by conducting the research necessary to make this plethora of judgments available.⁴⁵ In just a few years, China has used these technological advances to establish and index its database of millions of judgments. Following the national “Internet plus action” initiative, keyword research was upgraded to natural language processing.⁴⁶ Establishing these search programs, however, is just a small part of the overall goals of STCR.

B. Establishing a Legal System to Require the Use of the Judgments Database

Despite the availability of the case database and search programs, Chinese judges, at first, did not readily refer to STCR’s collection of prior decisions when making their own judgments. China’s judges hesitated to welcome STCR for several reasons. First, they are traditionally statutory judges and are used to applying only statutes, not cases.⁴⁷ Therefore, significant effort is required for over 110,000 judges to change their decision-making habits.⁴⁸ Second, judges may lack the skills and training to compare cases, find similar fact patterns, and summarize case rules since these tasks are quite different from applying predetermined statutory

to learn from the cases. *See* Interview with Gridsum Company Officials Miao Rui, Ren Jiao, and Li Bin, in Beijing, China (Mar. 2018); Interviews with Judges from No. 3 Intermediate Court of Beijing, China (Mar. 2018); Interviews with Prosecutors at Zhejiang Provincial Procuratorate (Apr. 2018); Interviews with Software Designers and Programmers for Zhejiang Procuratorates (Apr. 2018); Interviews with Prosecutors, Software Designers, and Programmers at Shanghai Procuratorate, in Shanghai, China (Apr. 2018).

⁴⁴ Xiaohui, *supra* note 8.

⁴⁵ Key word legal research has been provided by private companies like Beida Fabao. *See* PKULAW.CN, www.pkulaw.cn [https://perma.cc/A2HK-A5TD].

⁴⁶ *See China’s State Council’s Guidance on Actively Promoting “Internet +” Action*, STATE COUNCIL (Jul. 4, 2015), http://www.gov.cn/zhengce/content/2015-07/04/content_10002.htm [https://perma.cc/53AS-HKPE].

⁴⁷ Jia, *supra* note 2, at 2230–31.

⁴⁸ *See* Herald Wang Feng, *Supreme Law: As of the End of 2016, There are More than 100,000 Judges in the Country*, PEOPLE’S DAILY (Jan. 11, 2017), <http://money.163.com/17/0111/16/CAGTSTST002580S6.html> [https://perma.cc/W56Y-TV5T].

rules.⁴⁹ Third, according to the annual work reports of China's courts, an average frontline judge has to decide more than two hundred cases each year. With such a heavy workload, requiring judges to find prior analogous cases and compare them to the case at hand adds an additional step in their already over-burdened decision-making process.⁵⁰ Fourth, judges' discretion shrinks under the STCR system, since it requires them to follow prior analogous decisions while disallowing the judges to make law like common law judges.

Facing these obstacles, the introduction of the database system required additional procedural and substantive measures to support its success. Procedurally, according to SPCC's *Implementation Opinions on Accountability*, after a trial ends and before a decision is issued, the judge in charge of a case—called the undertaking judge (cheng ban fa guan, 承办法官), similar to the role of the chief judge in U.S. court—needs to research and examine prior analogous decisions, prepare a report of the research and analysis results, and post it on the internal case work system where other judges in the collegial panel, superior judges, and court leadership can review it.⁵¹ The undertaking judge also must prepare a draft opinion and recommend whether to follow, distinguish, or revise a prior analogous case decision.⁵² Before issuing the opinion, the undertaking judge must confer with other judges on the panel about the draft opinion.⁵³ The clerk of the panel records this discussion and posts it to the case system for superior judges and court leadership to review.⁵⁴ Substantively, with the report and the draft opinion at hand, if a judge wants to issue a decision that deviates from prior analogous decisions, he or she must apply for a conference of judges to be held.⁵⁵ The judge then needs to explain his or her reasoning to the conference of judges, and the group

⁴⁹ See generally Frederick Schauer, *Is the Common Law Law?*, 77 CAL. L. REV. 455 (Mar. 1989) (reviewing MELVIN EISENBERG, *THE NATURE OF THE COMMON LAW* (Harv. U. Press 1988)).

⁵⁰ In the comment area in WeChat under the news about SPCC's issuance of the *Implementation Opinions on Accountability*, many judges left complaints about the increased workload caused by the new requirements of having to follow same-type cases. They also expressed that they were fortunate that such opinions are currently only about SPCC judges, but they also were worried that in the near future, such requirements may be implemented nationwide.

⁵¹ Opinions of the Supreme People's Court on the Implementation of the Judicial Accountability System, art. 39.

⁵² *Id.* art. 42–43.

⁵³ *Id.* art. 44.

⁵⁴ *Id.* art. 45.

⁵⁵ *Id.* art. 15–16.

decides whether the deviation is establishing a new standard in a new type of case or is revising an old standard already established by prior cases.⁵⁶ If it is the former, the outcome is subject to the approval of the conference of professional judges. If it is the latter, the revision to the old standard must be approved by the adjudication committee of the court.⁵⁷ Court and departmental leadership also can initiate the aforementioned procedures if they find that the draft opinion deviates from the research report, which operates as a supervisory tool.⁵⁸

C. Underlying Motivations that Shape the Design of STCR

Although the legal system described above appears to have sufficient mechanisms in place to require judges to follow precedents, these procedural steps still must be actually implemented. China has been known to have a significant gap between its law on the books and law as it is actually implemented—“law in action.”⁵⁹ The STCR was developed under the background of China’s leaders pushing the development of AI technologies, but whether STCR will only be symbolic or whether it will be fully implemented is another question. If STCR is a symbol to cater to political leadership, and important parties affected by STCR do not sincerely embrace it, STCR may become only a decoration. Underlying reasons and incentives for creating STCR will significantly shape the operations of STCR. Facing resistance from frontline judges who are end users, STCR relies heavily upon the supervision of superior judges and court leadership. But why would traditionally statutory superior judges and court leadership welcome STCR when these key players have similar capacities and decision-making habits as frontline judges and thus similar resistance to STCR implementation?

This leads to one of STCR’s essential functions: supervising frontline judges and their judicial decision-making. Previous literature disclosed that China’s courts have a “black hole” of responsibility—meaning that the judge who wrote and issued an opinion may not have been the true decision maker in the case. This is because, until recently, opinions had to be approved by superior judges who frequently revised the

⁵⁶ *Id.* art. 40(2)–(3).

⁵⁷ *Id.* art. 17–19.

⁵⁸ *Id.* art. 64(3).

⁵⁹ See generally Barbara Celarent, *Law and Society in Traditional China*, 116 AM. J. SOC. 1046 (2010).

opinion during this review process. Further, the head of the court⁶⁰ could be sheltered by the adjudication committee, since the head substantially influences the committee.⁶¹ In targeting this problem, recent judicial reforms aim to make the judges who actually try the case the true decision maker so that only judges on the panel can influence the decision.⁶² However, judicial independence alone does not guarantee good, reasonable, and fair case decisions—or enhance judicial integrity. In a typical Chinese district court, fewer than fifty percent of the judges have a bachelor’s degree or higher degree in law, and fewer than thirty percent have passed the national bar exam.⁶³ Without supervision from superior judges or adjudication committees, frontline judges lacking adequate legal training may be persuaded or captured by powerful agencies, irrational popular pressures, or wealthy litigants.

Thus, along with increasing judicial independence, a judicial accountability system that supervises judges and makes them more accountable in accordance with SPCC’s two opinions on accountability is necessary. The two-sided reform to increase judicial independence while also creating more indirect control by superior judges is carried out according to the principles set by the Central Committee of the Communist Party of China in 2013, which states: “Let the trying judge decide, and let the decider take responsibility.”⁶⁴ Superior judges and court leaders are now motivated to promote STCR as the guiding system to restrict judicial discretion without direct intervention after losing the ability to directly influence case decisions.

⁶⁰ This is a judge with an administrative role in addition to an adjudicatory one.

⁶¹ He Xin, *Black Hole of Responsibility: The Adjudication Committee's Role in a Chinese Court*, 46 *LAW & SOC’Y REV.* 681, 706 (2012).

⁶² Such reforms include decreasing the intervention by court leaders and adjudication committees in specific cases, improving the collegial panel trial system and building a more professional judge system through selecting “post judges” (员额法官) who should be more capable and prepared to independently make judicial decisions. *See generally* CHINA CHANGAN NETWORK, http://www.chinapeace.gov.cn/node_25595.htm [https://perma.cc/2SFM-7LNL].

⁶³ Linlong Sang (桑林龙), *Research Upon the Education and Training of Local Judiciary (基层法官队伍建设与培养的研究)*, 11 *LEGAL SYS. & SOC’Y (法制与社会)* 155 (2017).

⁶⁴ Point 33, The Decision of the Party Center on Some Important Issues of the Comprehensive Deepening of Reform, passed by the third plenum of the 18th session of central committee of CPC. *See Decision of the Central Committee of the Communist Party of China on Several Major Issues Concerning Comprehensively Deepening Reform*, PEOPLE’S NETWORK (Nov. 16, 2013, 2:40 AM), <http://politics.people.com.cn/n/2013/1116/c1001-23560979.html> [https://perma.cc/DW7X-V7X7].

Successful implementation of STCR also requires the support of frontline judges who face high caseloads and increasing judicial accountability from the public. The focus on precedent in STCR will likely appeal to these judges because it will limit the occurrence of unconstrained judicial decision-making and produce more consistent outcomes. However, STCR's implementation will require additional steps from judges when making decisions, which may slow down the judicial process. Both frontline judges and court leaders are familiar with the decision-making process in a statutory system. Judges will need training to employ common law-like principles within the framework of China's statutory system. Given this difficult transition, the implementation of a highly intelligent software system that generates efficient and meaningful guidance is critical to alleviating resistance from frontline judges.

Article 8 of the *Opinions on Accountability* explicitly indicate that STCR shall be utilized to unify "judicial measurement."⁶⁵ The Chinese legal concept of "judicial measurement" (cai pan chi du, 裁判尺度) does not have an exact analog in American legal theory. The concept of judicial measurement most closely resembles that of judicial interpretation and is frequently used to describe the discretion judges use in calculating specific penalties, imprisonment length, and compensation amounts when applying statutes. Recently, SPCC has frequently used judicial measurement in its opinions that recognize new types of rights and liabilities in intellectual property, environmental, and financial laws.⁶⁶

The scope of STCR could be narrowed to include the types of decision-making generally recognized by SPCC as falling within the meaning of judicial measurement, but this category is largely undefined. Under this implementation of STCR, judges would look to prior decisions only in areas of the law where statutes are unclear and judicial discretion is broad. Among the thousands of opinions issued by SPCC, only forty-five have included judicial measurement, and they have covered specific legal issues such as compensation for (and recognition of) work-related injuries, maritime disputes, and sentences for certain crimes.⁶⁷ Where the statutory laws are not comprehensive, STCR would fill in the gaps and make judicial interpretation more consistent and standardized. Where the

⁶⁵ Jia, *supra* note 2, at 2230.

⁶⁶ More than one-third of the forty-five judicial instructions by SPCC have used the term "judicial measurement" in referencing new types of intellectual property, environmental, and financial law issues after 2011. *Id.*

⁶⁷ The research was done on Mar. 9, 2018, through Beida Fabao's database, available at PKULAW.CN, www.pkulaw.cn [<https://perma.cc/A2HK-A5TD>].

statutory laws are out-of-date, it is possible that STCR may help recognize new rights to satisfy the changing technology. Under STCR, the rationales for certain statutorily-recognized legal concepts that influence decision-making, and the weight of such factors, would be recognized by disparate lower courts in a more consistent manner. Limiting the scope of STCR in this way would likely make it easier for statutory judges to implement decisions based on precedent.

D. Same-Type Cases

A remaining essential component of STCR is the concept of same-type cases. SPCC's *Opinions on Accountability* do not provide a clear definition of "same-type cases"—nor is there any other judicial interpretation or law with this information. However, several bases for classification exist, including whether the case involves the application of the same statutory article or the same cause of action.

"Guiding cases" and "typical cases" are cases SPCC has deemed to have guiding effects on same-type cases and can help illustrate what are deemed to be same-type cases by SPCC.⁶⁸ China's original statutory system provides a basis for identifying same-type cases.⁶⁹ Generally, cases that involve the same cause of action are considered of the same-type in contract, tort, and administrative law (e.g., there is a category of cases that interprets what constitutes "potential deficiency undiscoverable by reasonable cautiousness" to exempt carriers from responsibility under Article 51 of the Maritime Commercial Law).⁷⁰ Two cases do not constitute same-type cases when they merely analyze the same statute, policy, or general legal principle. For example, all contractual issues involve the good faith principle in some form, but all contractual cases are not same-type cases. Another example is the category of cases that resolve procedural issues for prosecutors litigating public interest actions in

⁶⁸ For detailed explanations regarding typical or guiding cases see Jinting Deng, *Functional Analysis of China's Guiding Cases*, 14 CHINA: INT'L. J. 44, 44–70 (May 2016).

⁶⁹ See SPCC's Decision on Amending the Provisions of Cause of Action in Civil Cases, effective Apr. 1, 2011 and SPCC's Notice on Regulating the Cause of Action of Administrative Cases, effective Jan. 14, 2004.

⁷⁰ Case 绍兴县金斯顿针纺织有限公司诉商船三井株式会社 (Mitsui O.S.K. Lines, Ltd.) 海上货物运输合同纠纷案 in SPCC's Ten Model Maritime Cases in 2017.

environmental pollution cases.⁷¹ In criminal law, cases prosecuted under the same crimes are considered to be the same-type.⁷²

E. Progress in the Implementations of STCR

STCR includes an enormous case database that instantly updates as judgments are handed down. It has highly intelligent research systems that can make recommendations for same-type cases and generate reports and statistical analyses of these cases. The system also permits senior judges and supervisory leaders to ensure that judges follow similar prior cases. STCR's implementation plan accounts for supervision and efficiency demands, concerns regarding the difficulty of mastering common law-style legal thinking, and the possibility of an increased case workload. This detailed implementation plan suggests the STCR will be more than political decoration.

STCR relies heavily on these intelligent software systems—such as those that efficiently generate meaningful research reports that identify same-type cases—to alleviate the concerns given by frontline judges. The success of the intelligent software systems is essential for the effective application of STCR. China's national strategy calls for huge investment in big data and artificial intelligence. This investment includes several projects to incorporate AI technologies in courtrooms and in the work of prosecutors and police, which collectively have financial budgets in the billions of yuan and have the support of the Ministry of Science and Technology.⁷³ As a result, several technology companies have been incentivized to develop customized systems for these needs. For example, FaXin, developed by Gridsum, claims that it can recommend same-type

⁷¹ Case No. 9 in SPCC's Ten Model Cases in Environmental Public Interest Litigations in 2017.

⁷² Although there is no rule expressly stating that same crime cases are considered to be same-type cases, all databases of judgments in China have categorized criminal cases according to the types of crime a case concerns. See the national website for courts to upload judgments at: <http://wenshu.court.gov.cn/> [<https://perma.cc/7KLM-TJYZ>].

⁷³ For example, the SPPC established the Research Institute for Intelligent Prosecutorial Innovations. See *The Highest Inspection Initiated the Creation of the "Smart Inspection Innovation Institute"*, SUP. PEOPLE'S PROCURATORATE OF CHINA (Sept. 22, 2017), http://www.spp.gov.cn/zdgz/201709/t20170922_201171.shtml [<https://perma.cc/MZ79-H3UG>]. The SPCC also initiated a project to develop an intelligent system to assist with criminal sentencing. See *Supreme People's Court Project Development and Construction of Sentencing Intelligent Assistant System*, CHINA CT. NETWORK (Sept. 27, 2017), <http://www.chinacourt.org/article/detail/2017/09/id/3006148.shtml> [<https://perma.cc/AR6K-EH7Y>].

cases, produce statistical analyses, and generate some parts of the judgments for twenty-six crimes within China's criminal law codes and twenty-one causes of action in civil cases, covering over eighty percent of all cases.⁷⁴ Additional models are also being constructed.⁷⁵ Approximately sixty-six percent of all courts in China have established systems that can automatically extract the causes of action from complaints in civil and administrative cases; fifty-two percent can automate the production of facts and reasons in civil and administrative cases; sixty-seven percent can automate the information for defendants in criminal cases; thirty-six percent can support automatic extraction of statutory and discretionary sentencing factors in criminal cases; thirty-eight percent can support intelligent recommendations of laws and judicial interpretations regarding sentencing regulations; and thirty-two percent can provide the range of sentences for reference, all based on data analysis of prior analogous decisions.⁷⁶

III. A COMPARATIVE ANALYSIS OF STCR AND THE COMMON LAW

In evaluating whether STCR will make China's system more like a common law system, one crucial inquiry is whether STCR establishes the key characteristics of a common law system. As such, this section explains the central characteristics of a common law system and compares STCR to the common law.

A. *Stare Decisis* as the Central Characteristic of Common Law

"Civil law" and "common law" are frequently used as taxonomies to analyze legal systems in different countries and enable communication between disparate legal societies.⁷⁷ Although the systems have some convergence, civil law and common law each possess distinct features, which are valuable tools in comparing the virtues of the two legal systems.⁷⁸ The Chinese legal system is a variant of the European civil law

⁷⁴ Interview with Gridsum Department Director Miao Rui, in Beijing, China (Feb. 2018).

⁷⁵ *Id.*

⁷⁶ LI LIN & TIAN HE, ANNUAL REPORT ON INFORMATIZATION OF CHINESE COURTS 46–47 (2nd ed. 2018).

⁷⁷ Ugo Mattei, *Three Patterns of Law: Taxonomy and Change in the World's Legal System*, 45 AM. J. COMP. L. 5, 5, 9, 11 (1997).

⁷⁸ See generally Frank Cross, *Identifying the Virtues of the Common Law*, 15 SUP. CT. ECON. REV. 21 (2007).

system, with a similar focus on statutory law.⁷⁹ Yet, China's establishment of STCR brings the country closer to a common law system and may be part of a broader trend of global legal convergence.⁸⁰

Common law evolved differently in different countries; for example, while the U.S. legal system is grounded in common law, it is also heavily reliant on statutes.⁸¹ Though transnational, common law has "distinct local expressions" and can "shift over time, context and place."⁸² The concept of common law may refer not only to the substance of the common law doctrines in anchoring statutory rules and constitutional principles but also refers to the methods of deciding cases with "an inherent commitment to rationality and equality through adherence to precedents."⁸³ Thus, when arguing that STCR is a common law model in China, this article approaches common law from an institutional perspective (i.e., the functional form of the common law system generally) rather than discussing the substantive content of common law doctrines.

Although common law systems may vary in some respects, all have a central characteristic: the principle of *stare decisis*.⁸⁴ *Stare decisis* has three inherent parts. First, all published prior decisions are precedential unless specified otherwise in the judgment. Second, judges must follow precedents if their cases are deemed similar. Third, judges have authority to decide their cases and may decide whether their cases are like—or unlike—precedent. Several theories regarding the superiority of common law over civil law are based on this basic theoretical functional difference, i.e. common law has *stare decisis* while civil law does not.⁸⁵ Other distinct features of common law—such as judicial independence and judicial power—are not as intrinsic to common law as *stare decisis*, although the strength of the association is explored further below.⁸⁶ Therefore, the next section begins by comparing STCR and the common

⁷⁹ See James Feinerman, *The Chinese Challenge to Universality*, 83 PROC. ANN. MEETING 556, 556–58 (1989); Maurits Elen, *Interview: Jerome Cohen*, DIPLOMAT (Sept. 1, 2016), <https://thediplomat.com/2016/09/interview-jerome-cohen/> [https://perma.cc/4DYE-CE7V].

⁸⁰ John Henry Merryman, *On the Convergence (and Divergence) of the Civil Law and the Common Law*, 17 STAN. J. INT'L L. 357, 368 (1981).

⁸¹ Jia, *supra* note 2, at 2230–31.

⁸² Tracy Robinson, *Gender, Nation and the Common Law Constitution*, 28 OXFORD J. LEGAL STUD. 735 (2008).

⁸³ *Id.* at 736.

⁸⁴ Jia, *supra* note 2, at 2215–20.

⁸⁵ Cross, *supra* note 78.

⁸⁶ *Id.*

law in light of the *stare decisis* principle. It then discusses several other derivative features and whether they are absent or present in STCR.

B. Comparing STCR and *Stare Decisis*

STCR's goals demonstrate that it incorporates the principle of *stare decisis*. While there are differences between common law *stare decisis* and STCR's incorporation of the principle, ultimately STCR has three features that are similar to those of *stare decisis*.

1. Past Cases Are Precedential Under STCR

All prior case decisions are in the internal database of judgments available for research (although a significant number of judgments are missing from SPCC's publicly available case website).⁸⁷ While the data judges can directly access depends on their authority, the intelligent research systems are researching and "learning" from all judgments. Unlike guiding cases that are heavily edited with holdings, facts, and reasoning rewritten by SPCC through centralized judicial policymaking,⁸⁸ the judgments in the database are the originals as issued by the judges without further editing. This also distinguishes STCR from case law systems in other civil law jurisdictions, which restrict which cases constitute precedent based on the doctrine of *jurisprudence constante* or top-down approaches.⁸⁹

2. Cases Are Binding on Similar Cases Under STCR

Judges must follow prior analogous decisions. STCR's design provides procedural and substantive safeguards and incentives to ensure judges refer to prior analogous decisions made by their own courts, the

⁸⁷ Although the website has more than forty million judgments, considering that Chinese courts have concluded more than eighty-eight million cases during the last five years, a significant part of the judgments are still missing from the website. See *Highlights of Supreme People's Court Work Report*, SUP. PEOPLE'S CT. PEOPLE'S REPUBLIC CHINA (Mar. 12, 2019), http://english.court.gov.cn/2019-03/12/content_37449108.htm (last visited Apr. 17, 2019); LIN & HE, *supra* note 76, at 35–37.

⁸⁸ Jinting Deng, *The Guiding Case System in Mainland China*, 10 FRONTIERS L. CHINA 449, 464–65 (2015).

⁸⁹ Maria Angela Jardim de Santa Cruz Oliveira & Nuno Garoupa, *Stare Decisis and Certiorari Arrive to Brazil: A Comparative Law and Economics Approach*, 26 EMORY INT'L L. REV. 555, 575 (2012).

superior courts, or SPCC. If judges do not follow prior analogous decisions, they must distinguish their cases from previous ones. To overturn a previous decision, the judge needs to persuade a majority of judges in the conference of professional judges or pass the adjudicatory committee of the court.⁹⁰ Although neither China's legislature nor SPCC recognize prior case decisions as a source of law in a formal sense, they do not dismiss the authority of such sources of law. Instead of calling prior decisions "law" or "precedent"—which has a more ideological meaning—SPCC uses the words "law of cases" (cai pan gui lv, 裁判规律) to describe same-type prior decisions.⁹¹ This phrasing implies that SPCC holds that same-type prior decisions represent general prior court wisdom and should be respected by lower courts in similar proceedings. Moreover, with STCR's design, prior analogous decisions, in reality, have legal binding force on similar facts. This differs from guiding cases that have only influential or referential effects because they do not have the same restrictive design features of STCR. Since courts cannot cite guiding cases as a legal basis for judgments, and appellate courts cannot overrule a trial court decision for not following them, guiding cases cannot achieve binding force. Empirical research shows that in reality, some courts have explicitly declined the authority of guiding cases or simply ignored them.⁹²

SPCC refuses to formally pronounce prior decisions as precedents for two reasons. First, since China has a statutory system, judges do not recognize cases as a source of law in a formal sense. This reason is why SPCC has failed to formally confirm the legal status of guiding cases after decades of effort.⁹³ SPCC's position that guiding cases are influential or referential is already controversial. Many opponents argue that cases traditionally are not recognized as law: SPCC has no authority to make law—even if guiding cases are heavily edited and abstracted through a centralized process. Making case law contradicts China's political structure.⁹⁴ Of note, the word "precedent" has an ideological meaning and is generally deemed congruent with judicial lawmaking, separation of

⁹⁰ Opinions of the Supreme People's Court on the Implementation of the Judicial Accountability System, art. 40(3).

⁹¹ *Id.* art. 1; Opinions of the Supreme People's Court on the Judicial Accountability System, art. 12.

⁹² Deng, *supra* note 68.

⁹³ Jia, *supra* note 2, at 2231.

⁹⁴ An Xuemei (安雪梅), *The Limits in Framing Law of Guiding Cases* (指导性案例的法律续造及其限制), 1 POL. SCI. & L. (政治与法律) 105 (2018).

powers, and democratic Western-style countries. Claiming that prior decisions are not precedents helps circumvent these sensitive, difficult disputes. Using the wording “same-type cases” ornaments prior analogous decisions with good technological packaging—consistent with the national strategy by building a legal system with Chinese characteristics, thereby making the system more acceptable in China’s legal society.

The second reason that prior decisions are not referred to as precedent is that, although they are binding, prior decisions are different from statutory laws in that statutes provide more generalized legal concepts and the elements of legal relationships. In contrast, case decisions are factually based and, using a series of similar cases, filters more concrete factors that could be leveraged to have legal effect or constitute a legal doctrine. For example, China’s criminal statute states that the intent to kill is required to find murder.⁹⁵ SPCC further issued a judicial interpretation clarifying that an intent to kill could be found even if the murder is a result of a long-time, serious domestic violence.⁹⁶ Using this interpretation, cases can provide more detail surrounding the concepts of “intent” or “domestic violence” with the facts of the cases. The facts and their values and influences shift over cases, time, and place. Because China’s legal society has historically recognized only statutes as sources of law, China has considered sources of law to necessarily be general and abstract; cases—even if they become binding in STCR—are fact-based and concrete, and so China’s legal society struggles to accept cases as a source of law.

3. Judges Determine Similarities Between Current and Past Cases Under STCR

Prior to STCR, China’s judges were known to lack judicial independence and held limited judicial power.⁹⁷ This view needs to be reevaluated because the ongoing judicial reforms have sought to enhance judicial independence through the establishment of STCR, the elimination of superior judges directly approving opinions, and other judicial

⁹⁵ Crimes of Infringing Upon the Rights of the Person and the Democratic Rights of Citizens, P.R.C. Laws (China), art. 232.

⁹⁶ Opinions on Deciding Cases of Domestic Violence Related Crimes (Issued by the Sup. People’s Ct., the Sup. People’s Proc. Communique, the Ministry of Police, and the Ministry of Justice), (effective Mar. 2, 2015) (China), art. 20.

⁹⁷ Elen, *supra* note 79.

reforms.⁹⁸ However, several studies have noted strong resistance to advancing these reforms—especially due to the contradiction between judicial independence and upholding party dictatorship. Under the current design, even if reforms are successfully implemented, the judiciary may gain enhanced independence only from local party/government interference, but they can never be independent of party leadership. STCR may provide judicial independence similar to common law with respect to local affairs but not in regard to the party or politically sensitive cases. However, judicial independence may not be a necessary component of common law, and so a common law system may be able to function without it⁹⁹ because precedents do not rely on judicial independence to be binding and functional. Thus, it remains unclear whether precedent and judicial independence are intrinsically associated.¹⁰⁰ Other political or legal structural factors also influence judicial independence, such as democracy and the non-bureaucratization of court systems.¹⁰¹ Yet, China may be able to establish a common law system using STCR with only a semi-independent judiciary. Recognition by society that these decisions are binding on its behavior may be enough for STCR to have common law legitimacy. It remains to be seen whether and how STCR will function if judicial independence does not increase, and such results will surely contribute to the understanding of the relationship between judicial independence and common law.

Separate from the idea of judicial independence, the concept of a relatively strong judicial power is deemed more intrinsically related to common law. “By deciding cases and establishing precedents that are discretionary with the courts,” judges in common law may “exercise greater judicial policymaking power.”¹⁰² Similarly, with the implementation of STCR, judicial power in China will expand, which makes China’s case system more like common law. Cases decided by ordinary judges would have binding force, and ordinary judges would have stronger power in deciding cases with ongoing reforms. Judges

⁹⁸ Long Zongzhi (龙宗智), *Judicial Reforms: Looking Back, Reflecting and Looking Forward* (司法改革: 回顾、检视与前瞻), LAW SCI. (法学), 11–21 (2017).

⁹⁹ Rafael La Porta, et al., *The Guarantees of Freedom* 26 (Nat’l Bureau of Econ. Research, Working Paper No. 8759, 2002).

¹⁰⁰ Cross, *supra* note 78, at 56.

¹⁰¹ Peter H. Russell, *Toward a General Theory of Judicial Independence*, in JUDICIAL INDEPENDENCE IN THE AGE OF DEMOCRACY 1, 21 (Peter H. Russell and David O’Brien ed., 2001).

¹⁰² Cross, *supra* note 78, at 54.

would be bound by other judges' decisions, i.e. their interpretations of law. Although STCR courts should interpret and apply statutory rules and establish judicial standards, which is unlike common law judges overturning laws for "moral reasoning" or equity,¹⁰³ China's judges may overrule some statutory rules that contradict higher-level statutory rules or principles (such as good faith in some limited situations), and they may fill in statutory gaps or establish judicial standards in new types of cases where the legislature acts too slowly.¹⁰⁴ This potential rise in the judicial power of judges in China may further STCR's ability to function like a typical common law system.

Chinese judges are entrusted by the constitution to apply law to concrete cases and are authorized to decide cases. Judges also may decide which prior decisions are similar to the pending cases. This function is similar to the concept of judicial power in common law. Although STCR search programs may automatically recommend same-type cases, judges can choose to accept or decline these recommendations. Additionally, besides these automatic results, judges themselves may search using keyword search or other methods to find their own similar cases. Thus, STCR's programs still need the guidance of human judges.¹⁰⁵

C. STCR and Other Distinct Features of Common Law

Stare decisis can't explain all the differences between common law and civil law. Other distinct features include judge-made law, retroactive lawmaking, and the ability of judges to overrule existing law.¹⁰⁶ Although these features have been historically more incidental and less intrinsic than precedents, they are considered essential to judicial lawmaking in common law.¹⁰⁷ Considering these features, it would seem that STCR is potentially in opposition to the common law system. In China, only the legislature is authorized to make new laws, or change existing laws. With statutes in

¹⁰³ *Id.*

¹⁰⁴ Deng, *supra* note 68.

¹⁰⁵ Interview with Gridsum Company Officials Miao Rui, Ren Jiao, and Li Bin, in Beijing, China (Mar. 2018). Judges could manually add or delete the recommended cases by changing the elements of the pending case found by the machine from the legal documents of the pending case. The machine considers cases analogous if they contain same case elements. Moreover, the machine is trained by supervised learning of which human intervention is necessary. Unsupervised machine-learning will be difficult to achieve in the near future.

¹⁰⁶ Schauer, *supra* note 49, at 455–71.

¹⁰⁷ *Id.*

hand, judges proactively—rather than retroactively—apply the laws to cases. The cases in STCR’s database were decided according to a cited statute and help to clarify the meaning of these statutes. Although common law jurisdictions have statutes, and many common law doctrines have been codified, those statutes are taken as amendments to common law and are interpreted “in light of the stage reached at that moment in the judicial development of common law.”¹⁰⁸ For example, even if a statute makes no explicit requirement of criminal intent, common law judges can add such a requirement based on common law doctrines. Chinese judges cannot add any requirement that is not already in the statute.

On further inspection, however, the difference between common law and STCR may not be so significant. First, judges in China are prohibited from making law, while judges in common law systems face similar challenges in justifying their perceived lawmaking power.¹⁰⁹ One relatively sound justification is that common law judges do not make law, but instead, find law that grows naturally from fact patterns, situational sense,¹¹⁰ or “social propositions” spoken by judges.¹¹¹ Judges have restraints from their professional training and law school education, as well as from adversarial trials, procedural requirements, bar associations, reasoned open judgments, and other systems, and these institutional factors require judges to make law in a predictable, consistent way.¹¹² Similarly, in STCR, the binding force of prior analogous case decisions is justified by “the law of cases” reflected therein.¹¹³ The common fact patterns in these cases require any following cases to be decided similarly so that the same justice realized in earlier decisions can be similarly upheld in following cases. This is the same major justification commonly advanced for a judicial lawmaking power. Noting these similar justifications, it appears the power to make precedents in common law and the judicial power to decide cases that bind subsequent cases in STCR may in fact not be so different after all.

Second, the scope of judicial power in common law and in STCR may also be comparable. Although common law jurisdictions have a body

¹⁰⁸ Ernest Bruncken, *The Common Law and Statutes*, 29 YALE L. J. 516, 519 (1920).

¹⁰⁹ Schauer, *supra* note 49, at 455–71.

¹¹⁰ LLEWELLYN, *supra* note 32, at 73.

¹¹¹ EISENBERG, *supra* note 49, at 14–42.

¹¹² LLEWELLYN, *supra* note 32, at 15–16.

¹¹³ Opinions of the Supreme People's Court on the Implementation of the Judicial Accountability System, art. 1; Opinions of the Supreme People's Court on the Judicial Accountability System, art. 12.

of common law doctrines for judges to use to either decide cases directly, or to modify or overrule statutory rules, such common law doctrines have been heavily codified.¹¹⁴ Lacking a body of common law doctrine, China has published additional statutes of doctrines similar to common law so that judges have statutory laws to instruct their decision-making.¹¹⁵ This is not to say that China has similar rules to American common law, as the content of specific rules are subject to many factors (e.g., cultural, situational, historical, and geographical). But these additional statutes are *functionally* equivalent to common law doctrines. When required by justice, these additional statutes allow judges in China to modify or restrain other statutes. Because there are not enough statutes restraining judicial decision-making, some people have criticized China's judges for having overly broad discretion.¹¹⁶ Unchecked judicial discretion is a common problem in civil law countries that provides motivation for the establishment of case law systems, like the guiding case system in China and the adjudications compiled by Taiwan's Highest Court to bind lower courts.¹¹⁷

Common law statutes are also unlike civil law statutes because they do not have immutable authority.¹¹⁸ Some literature already notes that common law judges have the power to decide whether to extend, revise, or reject written law to maintain congruence with the social propositions read in precedent.¹¹⁹ In other words, judges can revise both written law and uncodified common law doctrines in deciding cases. This incompleteness—or retroactive lawmaking and moral reasoning—has distinguished common law from civil law and enabled judges to expand their powers.¹²⁰

However, statutory judges in China are also influenced by social propositions, which are frequently referred to as “sense” (ren qing, 人情).

¹¹⁴ John F. Manning & Matthew Stephenson, *Legislation & Regulation and Reform of the First Year*, 65 J. LEGAL EDUC. 45 (2015).

¹¹⁵ These include the good-faith principle, the general provisions regarding criminal intent, and criminal responsibility in China's criminal law, along with the general provisions in China's private law and numerous judicial interpretations.

¹¹⁶ Liang Ping & Xie Qi (梁平、谢琦), *The Range of Judge's Judicial Discretion and Its Legal Restraint* (法官自由裁量权的范围及其法律阻却), 1 J. HUNAN POLICE ACAD. (湖南警察学院学报) 74, 77 (2015).

¹¹⁷ Jia, *supra* note 2, at 2231.

¹¹⁸ H.L.A. Hart, *Problems of the Philosophy of Law*, in *ESSAYS IN JURISPRUDENCE AND PHILOSOPHY* 88, 106–08 (1983).

¹¹⁹ EISENBERG, *supra* note 49, at 140–60.

¹²⁰ Schauer, *supra* note 49, at 464.

They also have the duty to promote justice in specific cases. A major theme for establishing STCR and implementing judicial reform is to enhance a public feeling of justice in every case.¹²¹ An essential source of the public's perception of justice comes from consistent case decisions—such as following prior analogous decisions—and these decisions drive STCR. And, although common law judges may revise the law, it does not mean that the laws—or “doctrinal propositions”¹²²—have no normative value and are only a servant to social propositions. A positivist theory insists that law consists of a set of discrete rules that are divergent from open-ended social norms, which constitutes legal autonomy.¹²³ And so, in common law jurisdictions the law can only be revised under certain conditions, without which the law is immutable. Thus, the statutes in civil law may not be so immutable or complete, and the precedents in common law may not be so revisable or incomplete. In summary, while STCR and the common law system are somewhat different, their differences may not be so great.

D. Evaluating Common Law's Normative Values and STCR

As the previous discussion highlights, STCR is more similar to common law than other case law systems in civil law countries. A central distinction is the authority to make cases binding. In other civil law countries cases must be selected—or edited—by either the highest court or a specially authorized court to become binding.¹²⁴ This is similar to how China's guiding-case system worked. But under STCR, all original judgments are generally binding without filtering by the highest court. Similar to common law, this principal distinction entrusts the power to make binding decisions to judges and not a centralized bureaucracy. The underlying forces of precedent—logical reasoning, the requirement of consistency in legal systems, customs in the community, or a sense of the situation found (or created) by judges¹²⁵—begins at the bottom, as

¹²¹ See Xi Jinping, *Strive to Let the People Feel Fair and Justice in Every Judicial Case*, PEOPLE'S NETWORK (Feb. 24, 2013), <http://politics.people.com.cn/n/2013/0224/c70731-20581921.html> [<https://perma.cc/6ZXL-RNBV>].

¹²² EISENBERG, *supra* note 49, at 1.

¹²³ Schauer, *supra* note 49, at 470–71.

¹²⁴ Jia, *supra* note 2, at 2230–31.

¹²⁵ The difference between law being “found” and “created” by judges depends on whether we believe that there is immanent law in every case that can be found by every judge or that the law in some cases is created by judges either because there is no such immanent law in every case or because judges are limited as humans and may miss such

opposed to authorization from the top. Similarly, prior decisions in STCR achieve binding force because they represent “the law of cases,” which also comes from the bottom. Consequently, this leads to a more empowered judiciary and a bottom-up channel for the formation of rules.

Despite these similarities with common law jurisdictions, some differences remain. In China, prior decisions are not a source of law in a formal sense. Judges are subject to bureaucratic control and cannot overrule statutes. But from a quantitative perspective, there may only be trivial differences between Chinese and common law judges’ lawmaking power. Statutes are not wholly immutable, and in certain instances, Chinese judges can let social values prevail and use judicial creativity with some “leeway” in applying statutes.¹²⁶ At the same time, there have only been a few cases where common law judges have truly acted as legislators.¹²⁷ Even if they want to make law and consider social values in every case, because of the belief in legal autonomy from social values, only a few situations can actually create new laws: the social value under consideration must be so important that it supersedes laws.¹²⁸

From a qualitative perspective, the differences between STCR and common law can be significant. In those few cases where common law judges behave as legislators, they make groundbreaking decisions that are cited repeatedly to shape the law,¹²⁹ and the judge is lauded, even to the point of becoming a cultural hero.¹³⁰ Under STCR it is reasonably foreseeable that lower-level courts’ decisions will attract more attention, and they will use this opportunity to play a more important role in shaping the law.

However, the expansion of judicial power is still conditioned on upholding the strength of party leadership.¹³¹ STCR must fit into China’s political structure to survive. An essential normative commitment of common law is democracy, where common law works to empower judges, enhance judicial independence, and strengthen the separation of powers.¹³² As discussed *infra* Section II, there are two essential missions of STCR: restraining judicial discretion and enabling court leaders to supervise

law in some cases. Charles E. Clark & David M. Trubek, *The Creative Role of the Judge: Restraint and Freedom in the Common Law Tradition*, 71 YALE L.J. 255, 255–76 (1961).

¹²⁶ Deng, *supra* note 68.

¹²⁷ BENJAMIN N. CARDOZO, *THE NATURE OF THE JUDICIAL PROCESS* 98–141 (1921).

¹²⁸ Schauer, *supra* note 49, at 470–71.

¹²⁹ Clark & Trubek, *supra* note 125, at 256.

¹³⁰ Cross, *supra* note 78, at 53.

¹³¹ Elen, *supra* note 79.

¹³² *Id.*

judicial decision-making. Although the ability to make binding case decisions can empower judges, prior decisions can also work as judicial restraints. This constitutes part of the legitimate control in judicial lawmaking and serves as a reason to establish case law in civil law jurisdictions.¹³³ STCR further expands the restraining function of precedents as a supervisory tool. Similar to other civil law jurisdictions, judges are essentially part of the civil service under the control of party committees in China.¹³⁴ Moreover, judges are subject to internal bureaucratic control through evaluation and promotion.¹³⁵ Some of China's other ongoing judicial reforms—such as improving the juror system and making trials more adversarial—have incorporated systems frequently seen in common law countries. These reforms protect judicial independence from intervention by local authorities but not from the party center.

When evaluating STCR's shift towards a common law system, the fact that STCR is subject to the party leadership's supervision should be considered. STCR generally has a central institutional shape similar to that of common law (i.e., reliance on precedent), but, unlike common law, STCR does not have a normative commitment to democracy and independence. The evaluation depends upon how the common law system is defined. If *stare decisis* is deemed to have value independent of democracy in the function of the common law and is a determinative factor in deciding whether a case system is a type of common law system, then STCR can be seen as a type of common law with different political commitments. But, if democratic commitments are intrinsic to the function of common law, without which a *stare decisis* system has no essence of common law, STCR may not be considered a kind of common law. Under the latter definition, the normative value of the common law is viewed as more foundational than its mere external form in upholding *stare decisis*.

This article argues that it is better to identify common law through its adherence to *stare decisis*, rather than any political commitments. *Stare decisis* has an essential and independent value to common law and cannot be replaced by analogous judicial functions. It is thus necessary to preserve the *stare decisis* component of common law; otherwise, a common law system cannot be distinguished from the case law in a civil

¹³³ Jia, *supra* note 2, at 2231–33.

¹³⁴ Cross, *supra* note 78, at 4.

¹³⁵ XIN HE, JUDICIAL INDEPENDENCE IN CHINA: LESSONS FOR GLOBAL RULE OF LAW PROMOTION 180 (Randall Peerenboom ed., 2010).

law system. Since *stare decisis* stands as the most significant characteristic of common law, we may take *stare decisis* as intrinsic and integral to the formation of common law. If this is acceptable, then China's STCR is an example of common law, not functioning to advance democracy, but to strengthen centralized control over judges.

However, STCR does not necessarily lead to the negation of the common law's virtues in advancing democracy and liberty. Whether an institution is morally neutral or has some normative commitments is another question.

IV. STCR: "INTELLIGENTIZING" THE COMMON LAW SYSTEM

Having established the structural organizations of STCR, this section discusses the implementation of STCR technologically. Additionally, this section explores some of the positive effects of intelligentizing common law, such as efficiency, and the negative consequences of the technology, such as the inability to detect factual errors and account for discretion.

A. The Intelligent Court System in China

As introduced in Part II, STCR is being implemented as part of a national strategy to intelligentize courts in order to relieve the burden of judges' heavy case-loads, as well as to enhance the quality of judicial decision-making in every case.¹³⁶ The significant number of prior judgments provides a sufficient data set to train a machine learning case system, and, for this reason, STCR was launched quickly and smoothly in a number of provinces.¹³⁷ SPCC intentionally uses "类案" (lei an), referring to "similar cases," and avoids the Chinese characters "案例" (lei an) and "判例," (pan li), which have similar meaning to precedent, in order to distinguish STCR from common law. SPCC maintains that STCR is part of a broader program, in response to President Xi's call to build systems, to erect judicial systems with Chinese characteristics.¹³⁸ SPCC

¹³⁶ See discussion *supra* Part II.

¹³⁷ Conversely, the establishment of China's guiding case system has taken decades, which makes only a few judgments binding. Even for these few guiding cases, their binding force is still in dispute. See Jia, *supra* note 2, at 2216–20.

¹³⁸ President Xi has emphasized the confidence in China's own systems and paths. Zhao Mingren, *To Achieve the Chinese Dream, We Must Affirm "Three Self-Confidences,"* GUIZHOU DAILY (Nov. 28, 2013, 8:46 AM),

may sincerely believe that STCR is different from common law, since STCR is used to uphold party leadership rather than the separation of powers. But, as discussed above, both STCR and common law rely on precedents, even if STCR does not use that word. Thus, STCR, in some ways, may be seen as an experiment in intelligentizing common law.

The intelligent court system is part of the informatization of the Chinese courts, and it contains three key areas: intelligent case resolution, intelligent office administration, and intelligent personal evaluation.¹³⁹ Intelligent case resolution aims to move offline court-related activities to the online space, using AI to do judicial work to the greatest extent possible. These functions include opening a proceeding, serving electronic documents, submitting evidence, trying a case, and enforcing a judgment online, with AI assisting—or substituting for—humans.¹⁴⁰ STCR's AI involves trying and deciding a case—the heart of a court's work.

B. Intelligent Case-Deciding Programs

Currently, the AI programs meant to search and decide cases are unique to each province. To learn more about different STCR AI programs, the author interviewed officials in the sales, operations, and design departments of the companies that provide intelligent case-deciding programs to courts, such as Faxin and Zhishen.¹⁴¹ The actual programs were observed in-person, and the author also interviewed judges and prosecutors who have used the programs during their daily work.¹⁴²

Based on observations made in the field, several commonalities between each province's programs can be deduced. Generally, the AI

<http://theory.people.com.cn/n/2013/1128/c40531-23680527.html> [https://perma.cc/7443-BV7J].

¹³⁹ Alison Xu, *Chinese Judicial Justice on the Cloud: A Future Call or a Pandora's Box? An Analysis of the "Intelligent Court System" of China*, 26 INFO. & COMM. TECH. LAW 59, 62 (2017).

¹⁴⁰ *Id.* at 63.

¹⁴¹ Interview with Gridsum Company Officials Miao Rui, Ren Jiao, and Li Bin, in Beijing, China (Mar. 2018).

¹⁴² Interviews with Judges from No. 3 Intermediate Court of Beijing, China (Mar. 2018); Interviews and Observations with Prosecutors at Zhejiang Provincial Procuratorate (Apr. 2018); Interviews with Software Designers and Programmers for Zhejiang Procuratorates (Apr. 2018); Interviews and Observations with Prosecutors at Hangzhou City Procuratorate, in Hangzhou, China (Apr. 2018); Interviews and Field Observation with Judges at the Internet Court of Hangzhou, in Hangzhou, China (Apr. 2018); Interviews and Field Observation with Prosecutors, Software Designers, and Programmers at Shanghai Procuratorate, in Shanghai, China (Apr. 2018).

programs include three components: the program recommending cases of the same type (same-type program), the program providing statistical analysis of prior analogous cases (prior-case analysis program), and the program generating judgments (judgment-generating program).¹⁴³ All three subprograms are currently used in differing degrees based on the subject matter of the case. These subprograms are built using a similar series of algorithms to read the complaints, pleadings, and judgments from approximately forty million cases.

To build these programs, three steps must take place. First, a knowledge graph of factors is created for a computer to “understand” an uploaded document. These factors in the graph are sometimes more concrete than just legal elements, for example, a fact pattern that demonstrates a third degree disability or serious bodily harm to the victim. To create these graphs, experienced prosecutors and judges helped program manufacturers factorize each basic cause-of-action in civil law and each crime and built up the knowledge graph based on statutes, judicial interpretations, guiding cases, and their experience. Now, when a complaint is uploaded, it will be “factorized” with regard to this graph.¹⁴⁴ For each document that is uploaded, the graph tells the computer which factors were in the document and influenced the decision.

Second, algorithms inform the computers which linguistic expressions in the documents represent the existence of a factor. For example, if the document states “Defendant Jane Doe is nine-years old,” the computer will classify this as “Defendant under the age of criminal responsibility.” This second step is realized by a combination of technologies, one of which is natural language programming. Natural language programming is already capable of resolving certain linguistic statements, such as extracting the names of litigants, but some statements

¹⁴³ Interviews with Software Designers and Programmers for Zhejiang Prosecutor’s Office (Apr. 2018); Interviews and Field Observations with Prosecutors, Software Designers, and Programmers at Shanghai Procuratorate, in Shanghai, China (Apr. 2018). Also note that the programs are not finalized, and even the finished components are continually being upgraded. Thus, programs may differ in detail and shift over time.

¹⁴⁴ “Factorize” is a term of art—not by SPCC or governmental entities—and refers to a process that builds a legal knowledge graph for computers, using a decision tree, neural networks, or probabilistic graphical models. Interview with Gridsum Company Officials Miao Rui, Ren Jiao, and Li Bin, in Beijing, China (Mar. 2018); Interviews with Software Designers and Programmers for Zhejiang Prosecutor’s Office (Apr. 2018); Interviews and Field Observations with Prosecutors, Software Designers, and Programmers at Shanghai Procuratorate, in Shanghai, China (Apr. 2018).

are not suitable for natural language programming to understand.¹⁴⁵ This requires new algorithms—such as those involving certain Chinese characters or defining their properties and sequence to instruct the computer to find the related factor. If a factor has diversified linguistic expressions that are difficult to represent with several characters, or if such characters make the algorithms too complicated, supervised machine learning technology may be utilized. This enables the computer to self-study the rules of hundreds or thousands of documents that have been manually labeled as containing a certain factor. After self-learning, the computer can automatically factorize the factors from unlabeled documents. Unsupervised machine learning, which does not require humans to manually label documents in advance, is still unrealistic in analyzing the Chinese language.¹⁴⁶ These technologies, thus, may be used together if it helps the computer return more accurate results and reduces the need for human work. The goal, ultimately, is increasing the accuracy and intelligentization of the process.

Third, after the machine has factorized the judgments, including the pending case documents, it examines the overlap between the factors and displays the most relevant prior cases. Generally, the more factors in common between a prior and pending case, the more analogous the two cases are. The same-type programs end their process here. Prior-case analysis programs, which are still in development, aim to provide statistical analyses based on recommended cases. Such analyses include calculating an average compensation amount, sentence range, or factor frequency of cases with selected factors. An increasing number of analyses, such as regression analysis used to evaluate the weight of certain factors on the final sentence, will be added as more statistical models are uploaded. Currently, because the final judgment and complaint contain much of the same information, judgment-generating programs assist by simply copying and pasting information from the complaint to the judgment. Such programs also incorporate the evidence list for judges to modify. Certain factors cause the program to rerun the first two steps to provide a list of possible issues in the case. Additionally, the program may insert relevant legal articles, penalties, or compensation suggestions based on the analyses of the most relevant prior cases. In the near future,

¹⁴⁵ The development of natural language programming is still limited in analyzing relatively complicated language. Such limitations are more pronounced in understanding the Chinese language.

¹⁴⁶ Unsupervised learning may be used to divide cases into broad categories by clustering, but it cannot realize sophisticated or subtle analyses.

judgment-generating programs aim to complete the reasoning and conclusion sections of the judgment using multiple machine learning algorithms, including the ones mentioned above, as well as unsupervised learning (e.g., clustering and representation learning), to analyze prior cases.¹⁴⁷

C. The Virtues of Intelligent Case-Deciding Programs

1. *An Advanced Legal Researcher?*

Computers have long played a role in courts by helping establish facts in legal disputes through machine identification of evidence¹⁴⁸ and by assisting in the operation of the court, by recording trials and hearings, maintaining documents, and providing legal research and analyses. All of these things influence judicial decision-making to some extent—trial judges rely on machine evidence to decide the facts of cases, appellate judges review trial documents to determine issues, and judges generally refer to summaries of prior analogous cases prepared by clerks and litigants through computerized research. Thus, the intelligent court program may be nothing more than an advanced version of previous technology. Same-type programs can be viewed simply as advanced legal research engines similar to those used in other countries. For example, Westlaw has traditionally enabled diversified legal research methods, including the ability to search for cases by key words and natural language. It also has its own “key” system, which categorizes cases into issues summarized by its experts. Judges and clerks can find and review similar cases through these searches and select the cases they deem most relevant. Rather than require the user to search for analogous cases, same-type programs return results after the user uploads the complaint. Judges can then review and search the provided cases. These new programs may be more advanced than previous legal research programs like Westlaw in their accuracy, comprehensiveness, and simplicity.

But identifying relevant cases within a large database is never an easy task. This is why law schools require courses that teach legal research skills and why Westlaw and LexisNexis offer frequent training and online research assistance. To avoid missing relevant cases, research starts out

¹⁴⁷ Interview with Gridsum Company Officials Miao Rui, Ren Jiao, and Li Bin, in Beijing, China (Mar. 2018).

¹⁴⁸ Roth, *supra* note 27, at 2000–16.

broadly and gradually narrows. This requires researchers to use diversified expressions for a concept or to go through all possible key numbers in the key system (or similar systems). Legal research takes a lot of time and effort to complete—even for an experienced research assistant. Moreover, it may be unclear whether the research was done well because there might be a specific term the researcher missed. Missed research can be detrimental and embarrassing to the researching party when the judge or opposing party has a relevant prior case. Such a problem will not happen using same-type programs because all users will have the same results after uploading the complaint. The results are based on the strength of the program rather than the strength of the researcher. Although modifying a complaint may alter the research results, the research is still much more accurate and stable than key word research. This is because same-type programs can associate almost all commonly used expressions for a concept through its legal knowledge graph that is designed and constantly updated by groups of experienced law professionals. Moreover, after analyzing the facts, the program carries significantly more information than an individual researcher carries when researching, thereby reducing the selectivity and randomness of the research.

The use of same-type case programs may also have positive societal effects through the program's ability to identify the most relevant prior cases with relative ease. With the program, a lay person could complete the research simply by uploading the document without having prior legal knowledge or mastering complicated research techniques. This accessibility lowers the entrance bar to the legal system for the general public. Additionally, individuals may reasonably predict the results of their own pending cases simply by comparing their facts with the facts of the recommended cases. This will allow individuals to make informed decisions without any understanding of legal reasoning or doctrines. Consequently, same-type programs decrease the necessity and importance of hiring lawyers, thereby reducing litigation costs. Same-type programs also decrease the importance of legal research techniques and lower the opportunity cost of litigation. Both parties to a case will have nearly the same research results without the possibility of missing important cases. Same-type programs, therefore, improve legal accountability by eliminating one factor of legal vagueness, i.e. disparities in identifying prior analogous cases without knowing their representativeness of the whole database. That said, difficulties may arise from cases with certain facts that have not been factorized in the legal knowledge graph but are

considered important to the pending case. Such facts may be new or old facts that need new evaluation. Moreover, the system can only find what was written in the judgments or proceeding documents; if something is merely implied it would need to be specified in the system's algorithms. The results are also subject to the limits of NLP development in enabling machines to understand language.¹⁴⁹

2. *An Advanced Legal Analyst?*

Prior-case analysis programs' ability to automatically analyze prior analogous cases may be viewed as a supplement to or replacement for judicial clerks. Currently, these analyses are statistical models coded in algorithms that computers automatically process. For example, the program may recommend a compensation amount for a pending portraiture right¹⁵⁰ infringement case, given certain factors.¹⁵¹ The factors in the complaints may be factorized automatically by the machine or entered manually by the judge. Building the algorithm to calculate the compensation amount is similar to the process of factorizing cases. First, factors that may influence the calculation of the compensation amount are summarized using legal statutes, judicial interpretations, and the experience of judges who specialize in relevant issues. Second, multiple deep learning methods are used to enable computers to factorize previous portraiture right infringement cases, during which new factors that have influenced judges' measurement of compensation may be recognized. Third, the impact of the factors on the compensation amount is studied and tested by regression models based on theories offered by legal professionals and practitioners in similar legal studies. Fourth, the acceptance or declination by judges of the recommended compensation amount after consulting the model will be tracked and collected to test and

¹⁴⁹ NLP development is limited by the vagueness of language and the variation of words' meanings over time, place, and context. See Philipp Broniecki et al., *Data Innovation for International Development: An Overview of Natural Language Processing for Qualitative Data Analysis*, INT'L CONF. ON FRONTIERS & ADVANCES DATA SCI. (2017), at 92–97.

¹⁵⁰ The portraiture right is a unique right in China that is part of a bundle of personal rights, including a right of honor. *Photos Taken During a Concert: Legal Regime in China*, HFG L. & INTELL. PROP. (Nov. 29, 2016), www.hfgip.com/news/photos-taken-during-concert-legal-regime-china [https://perma.cc/3PHC-XL9P].

¹⁵¹ Such a program has been developed by a project completed collaboratively by computer scientists, an electronic business company, and a district-level court in Beijing. Interview with the Project's Chief Computer Scientist, Professor Dou Zhicheng, in Beijing, China (Apr. 2018).

adjust the model, allowing a twenty to fifty percent variation.¹⁵² The analytical model could be quite simple or very complicated depending on the context in which the program is used.

Judges find such analyses useful when the law fails to provide clear guidelines in areas such as calculating sentences and deciding the seriousness of the criminal activity. Like in the portraiture right infringement case, the law only states that the compensation shall be decided according to the loss caused by the infringement, but it does not specify how to decide the loss.¹⁵³ Without a model, judges have to perform the calculation ad hoc, and the results may vary widely. Judges, thus, may seek advanced machine assistance in more difficult contexts. Situational difficulty is reduced as facts not previously factorized in the law are incorporated.

In some respects, prior-case analysis programs provide more advanced assistance than legal researchers—the programs can offer some previously-thought-impossible analyses, and suggestions are more straightforward, scientific, and case-based. However, limitations still exist. In some cases, reliance on past judicial decisions or experiences may not be appropriate given the context, and associations found by programs may be incidental rather than causal. Further, its findings may be biased due to design deficiency or a discriminatory training pool. All of these factors need to be quantified in the model, which may inappropriately import normative values. Additionally, the system is limited in that it can advise legal applications but cannot adjust fact-finding. It must presuppose that the facts recognized in the judgments are facts that judges believed to be true when deciding the cases, which may not be accurate in many cases. Each specific question of law, therefore, needs a specially designed and trained model, which takes time and effort. Deciding whether to resolve a question manually, by machine, or by judicial discretion is a balancing act. Although judges need only refer to the advice offered by these machines, judges may be unreasonably reliant on them without other references available or a thorough understanding of potential sources of bias or errors, such as design deficiency or inadequate training.

¹⁵² *Id.*

¹⁵³ Gen. Rules of the Civil Law of China (promulgated by The Nat'l People's Cong. of China, Mar. 15, 2017, effective Oct. 1, 2017), art. 179.

3. *A Robot Judge?*

Intelligent case-deciding programs are capable of generating judgments, essentially making them like robotic judges. However, the concept of automatically generating judgments may not be entirely new—it can be viewed as an advanced type of a judgment template. Judgments are routinely written in a similar style, containing the information of the litigants, their evidence, their claims and arguments, the findings of fact and opinions of the trying court (or the lower court's fact-finding and opinions in an appellate case), and the conclusion. This template provides a framework for judges to copy and paste information and write their own findings and opinions. Meanwhile, judgment-generating programs automatically fill in information that can be found in the uploaded complaints. With the help of same-type and prior-case analysis programs, and additional models, judgment-generating programs may complete the findings and opinions sections as well. Unlike in the United States, judgments at the district and intermediate levels in China are as short as one or two paragraphs. Such judgments start with canonical statements from relevant statutes and continue with the facts as found by the court. The reasoning section consists of a summary sufficient to satisfy the elements required by the relevant statutes and ends with responses to each party's arguments. Finally, the opinion cites relevant statutes and makes a decision.

With proper training, a machine can competently complete many of these steps. Relevant legal statutes may be filled in with commonly used language based on prior analogous cases. Similarly, frequently used expressions from convictions, sentences, breach of contract, compensation, etc., can be collected and recommended by the program. It can further present the language used in the reasoning section of prior analogous cases that had similar decisions. For the fact-finding section, the program can copy and paste the facts claimed by each party. Judges only need to decide what facts they believe to be true without having to organize the language. Judges also need only decide whether to convict or compensate and do not need to organize the language and write out the whole decision, thus transforming their behavior into high-level managers. Nonetheless, judges would still have the ability to modify the suggested language if the machine's response was inadequate. Thus, judgment-generating programs provide an advanced template, similar to a preliminary judgment prepared by a judicial clerk. The program can be useful for simple and clear cases but may not be as helpful for unique or

complicated cases that are distinguishable from prior cases. After all, the program presents choices only from past decisions. If the program's suggestions do not contain the one the judge wants, she will need to write a new opinion.

In sum, STCR aims to relieve the burden of judges' heavy caseloads and improve the quality of judicial decision-making with AI assistance. AI programs act as legal researchers, analysts, and decision makers. They do this by conducting legal research more efficiently than human researchers, providing statistical analysis of prior analogous cases, generating judgments, and writing decisions. All of this is subject to judicial oversight, with judges retaining the ability to reject any part of the STCR AI process and manually complete such tasks.

V. IS ROBOTIC COMMON LAW STILL COMMON LAW?

This section addresses whether machine-made law should be considered part of the common law. While machines are capable of completing most tasks, a portion of which they can resolve more efficiently than human judges, there remains a portion of cases, which machines cannot resolve.¹⁵⁴ This disparity requires an analysis of machines' impact on the common law, namely *stare decisis*, the function of incrementally updating laws, and judicial lawmaking.

Although STCR is highly automated, it serves only to assist judges in its current state and is not yet able to replace them.¹⁵⁵ STCR's intelligent programs, i.e. machines, analyze judicial documents according to algorithms. The rules carried out by the machines are designed by groups of law professionals and programmers, based on their expertise. The algorithms serve two functions: first, they tell the machines which statements correspond to which factors; second, they tell the machines how to make certain routine judicial decisions with specified factors, using models such as decision trees. Although machines may independently learn to equate certain statements to certain factors, this initial exercise is completed by humans. Unless the accuracy of an association found by machines surpasses a high threshold, as verified by humans, such a model will not be used in practice.¹⁵⁶

¹⁵⁴ See discussion *infra* Part IV.

¹⁵⁵ See discussion *supra* Part III.

¹⁵⁶ There is not a standard accuracy rate requirement, but normally, such a rate has to be at least ninety to ninety-five percent. Otherwise, the products based on these models

At each node of its decision model, STCR's programs allow judges and users to intervene and make modifications so that they control the final output. After a document is uploaded, same-type programs will factorize it and make recommendations. Judges can correct the factors and instruct the program to find analogous cases based on those modified factors. Additionally, judges can instruct prior-case analysis program models to analyze the determinations made by judges. Prior-case analysis programs can return suggestions based on the factors entered by judges. Judgment-generating program models rely on judges and their selections to proceed. In the end, judges retain the discretion to reject any of the suggestions and answers provided by the machines. Even if the *Implementation Opinions on Accountability* requires judges to follow prior cases produced by machines, judges can still distinguish cases through selective interpretation of prior cases.¹⁵⁷ Thus, STCR's intelligent programs simply provide the same level of aid that judges receive in interpreting prior cases. However, STCR's existence and potential capacity to complete advanced, abstract thinking and analysis can go further. Ultimately, these programs can help replace judges in simple, non-controversial cases. This possibility makes the following discussion of STCR more meaningful. There is an open question as to whether machines should be allowed to provide such assistance to judges—or even replace judges in some cases. If so, it remains to be decided whether machine made law is common law.

The United States judicial system makes wide use of computer programs. Employing such use affects both fact-finding and lawmaking. Evidence created by or collected with the help of computer programs dominates modern trials, especially in criminal matters.¹⁵⁸ Judges rely on these models to evaluate damages, expected profits, risk, danger, and value. Previously, these elements were determined according to judges' subjective determinations. In contrast, there is now software in use that helps decide the risk of recidivism and assists judges in deciding bail, remission, and sentencing.¹⁵⁹ Literature in the legal field about AI use

cannot satisfy judges' demands and will not be able to compete in the market. Interview with Gridsum Company Officials, in Beijing, China (Mar. 2018).

¹⁵⁷ See Jeffrey A. Pojanowski, *Reading Statutes in the Common Law Tradition*, 101 VA. L. REV. 1357, 1423 (2015); LLEWELLYN, *supra* note 32, at 62–120.

¹⁵⁸ Christian Chessman, *A "Source" of Error: Computer Code, Criminal Defendants, and the Constitution*, 105 CALIF. L. REV. 179, 179 (2017).

¹⁵⁹ Benjamin Liebman, *Artificial Intelligence in the U.S. Legal System: Challenges and Concerns* (美国司法实践中的人工智能:问题与挑战), 2 CHINA L. REV.

centers on two notions. First, such an application may contradict existing relevant constitutional or common law doctrines, including substantive and procedural due process, the confrontation clause, and anti-discrimination requirements.¹⁶⁰ The other notion considers public policy, societal problems, and new errors that may be caused by machines, such as the loss of jobs, hidden discrimination, algorithmic bias, machine error, and accountability.¹⁶¹ Both of these ideas lack a discussion about the overall impact of algorithms on the common law system from a jurisprudential perspective. Additionally, these discussions omit the analysis of the influence over central characteristics and functions of common law, such as *stare decisis* and upholding democracy and liberty. The following section aims to fill this gap. Using STCR as an example, it first discusses the kinds of tasks in the judiciary that may be completed by machines and which factors are influential. Then, it focuses on the impact that replacing judges with machines will have on the common law system.

A. Machine Capabilities at Completing Tasks

Literature on robot regulators divides the use of machines in law into two categories: routine decision-making and agency lawmaking.¹⁶² Machines used for rather simple legal processes are categorized in the routine decision-making category. Machines in the judicial realm fall into the agency lawmaking category and are considered more problematic and subject to various legal doctrines and policy concerns, such as nondelegation, transparency, and reason-giving.¹⁶³ However, this categorization may not be suitable. In simple cases where judges are interpreting law and making decisions,¹⁶⁴ they in fact repeat the application of clear law and seem to partake in routine decision-making. Thus, the current same-type technology employed in China does not fit neatly into these categories. Moreover, the previous taxonomy is too human-centric and fails to incorporate the rules of machine “behavior.” In

(中国法律评论) 54, 54 (2018); *see also* State vs. Loomis, 881 N.W.2d 749, 754–55 (Wis. 2016) (evaluating the use of an algorithm that purports to predict whether a criminal defendant will reoffend).

¹⁶⁰ *See* Chessman, *supra* note 158; Liebman, *supra* note 159; Roth, *supra* note 27, at 2030–516.

¹⁶¹ Chessman, *supra* note 158. *See generally* Kroll et al., *supra* note 24.

¹⁶² Coglianese & Lehr, *supra* note 21, at 1214–15.

¹⁶³ *Id.* at 1147–49.

¹⁶⁴ RONALD M. DWORKIN, LAW’S EMPIRE 338 (1986).

some circumstances, models can be more complex and difficult to maintain, as well as subject to higher error rates in routine decision-making than in lawmaking.

This article instead divides the tasks of the judiciary into three categories: (1) readily machine-resolvable tasks (RMR); (2) possibly machine-resolvable tasks (PMR); and (3) impossibly machine-resolvable tasks (IMR).¹⁶⁵ Additionally, the success of AI in completing these tasks can be evaluated by how well the machines function as either humanly or rationally. Humanly refers to measuring success in terms of fidelity to human performance, while rationally refers to measuring against an ideal performance.¹⁶⁶ Following this taxonomy, RMR tasks in the judiciary are defined as tasks, which, with existing available data, machines can perform better than experienced judges at an acceptably low error rate. A simple “human” test of the soundness of machine performance is to look at whether suggestions provided by machines are always accepted by experienced judges who are free to reject these suggestions. Conversely, a “rational” test could look at whether machine performance is statistically significantly closer to an ideal performance than judges on average. Under conditions that should be realized in the foreseeable future, PMR tasks are those that a machine can perform better than experienced judges at an acceptably low error rate. In contrast, IMR tasks are those in which machine performance cannot surpass the soundness test or the conditions cannot be satisfied.

This taxonomy should not be used to suggest that readily and possibly machine-resolvable tasks *should* be completed by machines. Instead, it provides the basis for further discussion on the impact of machines replacing judges in common law. When machines are introduced to complete these tasks, they may initially require strong human supervision. But after being in use for a period of time, the machines can advance to where they will only require partial human supervision. With sufficient training, machines may be able to complete relatively difficult tasks without any human supervision at all. This sort of training and

¹⁶⁵ This idea is inspired by interviews with computer scientists, STCR intelligent software developers, and online canonic AI-related course materials. *See* Interviews and Field Observations with One Mathematician, Two Computer Scientists, Four Software Developers, and Many Program Operators and Users, Beijing, China, Zhe Jiang, China, and Shanghai, China (Feb.–May, 2018); Wang Wenmin (王文敏), *Artificial Intelligence Principles* (人工智能原理), PEKING UNIV., <https://www.icourse163.org/learn/PKU-1002188003#/learn/content> [<https://perma.cc/Y8CU-ZW4E>].

¹⁶⁶ Wenmin, *supra* note 166, at pt. I, sec. 1.4, p. 3.

supervision process is currently the standard way to “teach” machines to be intelligent.¹⁶⁷ Thus, even if STCR’s programs currently look like pre-AI judicial assistants, a gradual substitution of machines for judges may eventually occur as the machines are further trained.

The difficulties in enabling machines to complete complicated tasks multiply along the above categories. The data, time, and effort needed for developing RMR-targeting programs are substantially less than the other categories. Inspired by STCR’s programs, two aspects may influence the categorization of a judiciary task in the taxonomy—the data and the factors. Data refers to both the amount and the availability of data needed to train the model for a specific task. The amount of data need not be vast, so long as it can cover nearly all of the circumstances of the task. The availability of data refers to the degree of digitalization of human behaviors and experiences in completing the task and the sensitivity, accessibility, and usability of the data. “Factors” refers to the complexity of the task, including the number and range of variables that may affect the solution. These variables include (1) the capacity of the human expert in specifying these variables, (2) the coverage of all variables by existing human expert experience and knowledge, and (3) the decision rules about how these variables work together in the minds of human experts to achieve the outcome of the task. Capacity of human experts depends directly on the ability of the human experts to connect the factors with the real world, namely distinct words, photos, and other records. The coverage of the variables pertains to whether the summary of factors embody all the considerations and specifications of each factor. Further, it is crucial that the coverage includes all possible representations of the factors in the real world. The decision rules for different legal issues will likely be different but will rely generally on the connections between the variables and the problem to be addressed. For example, these variables in STCR are the factors summarized by experienced judges or prosecutors in their decision-making, such as the elements of the crimes and their sub-elements.

For a judicial task to be RMR or PMR, it needs to be computable, algorithmizable, sustainable, applicable, and have data available. First, the calculation of the algorithm for a judicial task needs to be within the calculation capacity of computers. If the algorithm includes an exponential

¹⁶⁷ Interviews with Software Designers and Programmers for Zhejiang Prosecutor’s Office (Apr. 2018); Interviews and Field Observations with Prosecutors, Software Designers, and Programmers at Shanghai Procuratorate, in Shanghai, China (Apr. 2018).

increase, it may be outside the calculation capacity. If the factors or their representations in the real world may increase exponentially over time, the judicial task may not be computable.

Second, the judicial task needs to be resolvable in algorithms so that machines can calculate them. As some literature has already noted, specification is one factor used to decide whether a judicial task can be translated into an algorithm, i.e. being algorithmizable.¹⁶⁸ The number of factors and the decision rules also affect whether judicial tasks are algorithmizable. The more factors there are—and the more they vary—the more difficult it will be for a judicial task to be coded in algorithms. For example, the decision rules such as “forming a moral certainty” or “conforming to a sense of justice” are still deemed incapable of being presented in the form of an algorithm, although there are some discussions about whether computers may form their own wills capable of deciding justice in the future, through machine learning.¹⁶⁹

Third, for machines to “understand” the designed algorithm, and then act or think accordingly, the resolution of the judicial task needs to be sustainable. This means that the factors, their representations in the real world, and the decision rules must remain relatively the same for a substantial period of time. Such sustainability guarantees the effectiveness of the algorithm, the established knowledge graph, and the labels marked manually in the documents. A significant break from, or overruling of past decisions, may necessitate a fundamental change to the algorithm. Further, it requires a revision of the labels manually marked on thousands of documents.

Fourth, the factors, their representations in the real world, and the decision rules need to be uniform nationwide for the machines to be applicable in different places. Otherwise, as in the case of sustainability, algorithms will need modification and the original manual labeling may all be wrong. But the granularity of the algorithm can be enlarged to some degree to increase the applicability and flexibility of the algorithm so that lower-level rules can be different while upper-level rules are uniform.

Finally, machines need sufficient data for training. The amount of data needed increases substantially with the growth of the number of factors and their representations in the real world, as well as the degree to which they could be specified. At this time, no legal standard for a desired or acceptable accuracy rate exists. It has been suggested that clearly

¹⁶⁸ Coglianese & Lehr, *supra* note 21, at 1156–60.

¹⁶⁹ Ingles, *supra* note 25, at 519–522.

specified and defined factors in the law may require hundreds of samples to train computers so that the accuracy rate can approach ninety-five percent.¹⁷⁰ Factors that are well-known and could be specified by legal experts according to their expertise may need thousands of training documents. But there is still a risk that their accuracy rate may only approach eighty percent.¹⁷¹ Examples include finding information about time, place, identity of defendants, and their mental situations. Factors that are intuitively understood by legal experts and cannot be specified in general ways may need tens of thousands of samples. And under those conditions, the accuracy rate only approaches seventy percent.¹⁷² Some mandatory data may become available once the judges' behavior in resolving the judicial task can be digitalized, while some tasks may need judges to teach computers how they think when they behave in a certain way, which increases judges' steps in resolving the task. An example would be labeling certain statements in a criminal's confession as "motivations" in order to produce training materials for computer programs.¹⁷³ Some data, however, may involve trade secrets, patent protections, agency interests, state secrets, or security concerns, making it difficult to use these materials for training computers.

These factors together help categorize a judicial task and represent the characteristics of the task. RMR or PMR tasks are those where computers may actually replace judges in the foreseeable future and are thus the starting point for a discussion of the impact of robotic substitution within a common law system.

B. Impact of AI Machines on the Common Law

As discussed in Part III, despite the disparate evolution of common law across different countries and the growing convergence of civil and common law systems, it is generally believed that common law needs certain features to be distinguished from case law in civil systems. For similar reasons to the comparison of China's STCR with common law, this section will examine the central characteristics, distinct features, and

¹⁷⁰ Interviews and Field Observations with Software Designers and Programmers of Shanghai Procuratorate, Shanghai, China (Apr. 2018).

¹⁷¹ *Id.*

¹⁷² Interviews with Software Designers and Programmers for Zhejiang Prosecutor's Office (Apr. 2018); Interviews and Field Observations with Prosecutors, Software Designers, and Programmers at Shanghai Procuratorate, in Shanghai, China (Apr. 2018).

¹⁷³ *Id.*

functions of common law when analyzing the impact of machines. These include *stare decisis*, judicial lawmaking, the function of incrementally updating laws and providing reason, and commitments to upholding democracy and liberty.

1. *Stare Decisis*

Do machines treat like cases alike when they replace judges in RMR or PMR tasks? The answer is yes. Machines' capacity to complete these tasks is built by having machines study past analogous judgments. Data from prior cases is the lifeblood of AI in the judiciary, without which machines cannot be created. When machines decide RMR or PMR cases, they factorize the pending case, associate it with past cases that have similar factors, and then decide it according to the rules of past analogous cases. This is the same process judges normally follow with regards to precedent. When machines factorize the pending case, they associate statements with similar meanings based on past judgments and mark them with the same factors. They learn association through either a knowledge graph or self-learning. The rules of past analogous cases are normally provided in algorithms designed by legal experts and programmers according to the most plausible readings of relevant laws and generally accepted effects of these factors in deciding cases. Machines may provide statistical analyses and proof for such readings or effects. However, they may not be permitted to draw the rules through self-learning from the results and the factors of past analogous cases directly because it may cause the "black box" problem.¹⁷⁴ Consequently, facts that were considered factors will continue to govern in new cases, and those facts which were not considered factors will not affect new cases. Cases that have similar factors will be decided similarly as past decisions.

Using intelligence to follow precedent seems to be a rigid version of *stare decisis* but can be distinguished in several respects. First, in algorithms, the elements and the interpretations of doctrines and statutes of past cases are predetermined, specified, and fixed. In contrast, with *stare decisis*, there are disputes over whether to uphold formalist (or non-formalist) interpretations of doctrines and enacted texts,¹⁷⁵ and even the

¹⁷⁴ See generally FRANK PASQUALE, *THE BLACK BOX SOCIETY: THE SECRET ALGORITHMS THAT CONTROL MONEY AND INFORMATION* (2015). The black box problem generally refers to when a machine self-learns to find ways to complete tasks, but a human cannot determine how the machine completed the task.

¹⁷⁵ Pojanowski, *supra* note 157.

“reasonably clear, public semantic meanings” of the texts upheld by the textualists are not unified.¹⁷⁶ The text according to judges may have several meanings or interpretations with slight differences, and these differences can be nontrivial in extreme circumstances. Second, the factors of precedents are pre-extracted when using artificial intelligence. What factors each precedent has and what facts in the precedent constitute each factor are determined and fixed, whereas when judges follow precedents, they may reinterpret them or even go back to the whole set of facts and endow originally trivial facts with new values.¹⁷⁷ Through this process, judges also reinterpret relevant doctrines and legal texts. Third, when deciding whether two cases are similar, machines simply calculate the similarity of the factors they have been given according to algorithmized rules, while judges may apply selective rules in finding similar cases. In some instances, judges may consider past cases for all the factors shared with the pending case as controlling precedent; while in other instances, they may use a qualitative test, ignoring some factors.¹⁷⁸ Fourth, all these factors, rules of decision, and their representations in documents are programmed into algorithms to represent the interpretations of the legal experts who participated in developing and training the machines. Labeling documents represents the understandings of people who do the labeling. However, when judges follow precedents, they have their own understandings of the doctrines and legal texts, and they apply their own rules of comparison to follow them. Such understandings are individualized within certain parameters and may differ from those of the experts who completed the initial labeling. Although judges theoretically all start with the same body of precedent in crafting a judgment, each judge makes individualized decisions and takes responsibility for those decisions. Hence, the intelligent system of precedents nearly eliminates ad hoc discretion of individual judges.

However, it is inaccurate for several reasons to conclude that within these tasks, judicial discretion would be entirely eliminated. Discretion and specification are not inherently contradictory because discretion does not equal vagueness, and specification does not mean the algorithms are fixed or unchangeable. First, judicial discretion exists in algorithms. When legal experts summarize the factors and mark their

¹⁷⁶ See John F. Manning, *Second-Generation Textualism*, 98 CALIF. L. REV. 1287, 1288 (2010).

¹⁷⁷ Clark & Trubek, *supra* note 125, at 255–76.

¹⁷⁸ These skills have been summarized as the leeway of common law. See LLEWELLYN, *supra* note 32, at 62–120.

facts, they build into computers judicial discretion in applying relevant laws. The difference is that such discretion is specified and represents the judicial discretion generally accepted by these legal experts. The algorithms could be modified to reflect an update of the laws and the legal experts' generally accepted judicial discretion. Further, the granularity of the algorithms to filter targeted factors and facts could be adjusted to accommodate different degrees of acceptance of specified judicial discretion.¹⁷⁹

Second, machines are designed to mimic humans in completing these tasks. A fundamental difference between AI and previous scientific instruments and programs is that AI seeks to replicate human thought and actions. This lack of differentiation is the goal of the Turing test, one measure of AI's success. The Turing test holds that a computer may be deemed to have intelligence if a human interrogator, after posing some written questions, cannot tell whether the written responses came from a person or a computer.¹⁸⁰ There are updated versions of the Turing test, such as a visual Turing test,¹⁸¹ but all seek to argue that at some point, the difference between humans and machines may reach the point of undetectability. The Chinese Room Argument presents an alternative hypothesis to AI completeness. It theorizes a person locked in an enclosed room who does not know Chinese, but with translation software, can translate English words into Chinese. The Chinese Room Argument posits that, although people outside the room will receive Chinese words correctly translated from the English words by the person inside, it is incorrect for people outside to conclude that the person inside understands Chinese.¹⁸² This argument disputes the soundness of the Turing test and its variants and argues that a program cannot give a "mind," "understanding," or "consciousness" to a computer.¹⁸³ Applied to judicial tasks, this article argues that the Turing test can similarly ask, after posing some legal questions, whether a human interrogator can distinguish between the written responses of an experienced judge and a computer. When there is little difference, machines may replace judges in answering legal

¹⁷⁹ Interviews with Software Designers and Programmers for Zhejiang Prosecutor's Office (Apr. 2018); Interviews and Field Observations with Prosecutors, Software Designers, and Programmers at Shanghai Procuratorate, in Shanghai, China (Apr. 2018).

¹⁸⁰ Alan M. Turing, *Computing Machinery and Intelligence*, 49 MIND 433 (1950).

¹⁸¹ See Donald Geman et al., *Visual Turing Test for Computer Vision Systems*, 112 PROC. NAT'L ACAD. SCI. 3618 (2015).

¹⁸² John R. Searle, *Minds, Brains, and Programs*, 3 BEHAV. & BRAIN SCI. 417, 417-18 (1980).

¹⁸³ *Id.* at 418.

questions, consistent with the practical development path of judicial AI. Initially, machines should complete these tasks under the full supervision of judges (as in China's use of STCR). As the performance of machines becomes more accurate and reliable, the supervision can become more limited. Finally, when machines regularly return decisions substantially the same as decisions of experienced judges, the supervision can be wholly removed.¹⁸⁴

Judges can improve machine decision-making performance by creating labels that enable self-learning. Self-learning criteria are based on the acceptance or rejection of machine-created statements and suggestions.¹⁸⁵ Since a machine acts like a human in these tasks, its decisions represent judicial discretion and may be given the same deference as a judge's decisions. In an ideal world, every judge would use AI that can track his or her considerations and decisions. Then, if judges generally agree on the same resolution for certain issues or evaluate certain facts and factors similarly (i.e., with minimal variation), machines will record these judicial behaviors, form rules, and incorporate the rules into algorithms. Such cases where judges hold generally unified discretion, and where the situations are relatively simple, can be viewed as RMR or PMR tasks where machines can continue the exercise of judicial discretion after they have learned gradually from judges. On the other hand, if judges reach disparate resolutions or evaluations (as is the case with IMR tasks), machines may not be able to form rules and may return error messages or provide no suggestions. This includes situations where non-formalistic and formalistic interpretations of doctrines or enacted texts lead to opposite outcomes or where reasoning contradicts the sense or equity of the situation. However, in situations where even human judges cannot agree on a resolution, machines cannot be relied upon to complete IMR tasks in a predictable manner.

2. *Incrementally Updating Laws*

Understanding the continuity of judicial discretion in AI judges is essential to evaluate the impact of machine substitution on the function of the common law system over time. A common law system has well-

¹⁸⁴ Interview with the Project's Chief Computer Scientist, Professor Dou Zhicheng, in Beijing, China (Apr. 2018).

¹⁸⁵ *Id.*

recognized advantages over a civil law system.¹⁸⁶ For example, a common law judge has the mission, authority, motivation, and competence to pursue consistency among enacted or precedential legal rules and social values by incrementally modifying laws, case-by-case, with the effect of weaving past and future laws into a seamless web.¹⁸⁷ However, continuous change is not the same as the smoothly continuous flow of real numbers (such as in calculus). Statements in logic are viewed as discrete objects and have distinct, separate values. However, they still vary continuously in a legal sense. Although current computer science is built on discrete mathematics, which excludes continuously varying objects, it considers the variation of discrete objects. Thus, AI judges should have the potential capacity to capture, incorporate, and reflect the variation of laws. Again, specification is not equivalent with remaining fixed and unchanged.

An argument may be raised against AI judges' competence to incrementally update law. Although machines can incorporate changes, they need modifications to the specifications in their algorithms to do so. Consequently, machines may track the changes of human judges in their decision-making and follow those changes, but machines cannot *create* changes in the same manner as human judges. Common law judges are believed to be able to identify and forge a shared sense of reasonableness on the social problems presented in pending cases and apply reason rather than pure precedent to resolve cases.¹⁸⁸ Human judges incrementally change the law when deciding every case through this lawmaking and re-evaluation of legal meanings present in recurring fact patterns. AI judges must wait until their algorithms are changed to reflect the outcomes of newer cases, which is more like the civil law-style of modifying statutes. Moreover, an essential reason to have trials is to provide a public forum for disciplined deliberation by parties so as to converge diverse views, provide collegial wisdom and insight from the local community, and make judicial decisions on public guidance for local people.¹⁸⁹ If AI judges cannot be influenced by the deliberation and arguments happening in ad hoc trials, it becomes meaningless for the parties to participate in trials—or for trials to even continue to exist.

¹⁸⁶ See Nuno Garoupa & Carlos Gomez Ligerre, *The Efficiency of the Common Law: The Puzzle of Mixed Legal Families*, 29 WIS. INT'L L.J. 671, 672 (2010).

¹⁸⁷ Harlan Fiske Stone, *The Common Law in the United States*, 50 HARV. L. REV. 4, 12 (1936).

¹⁸⁸ Gerald J. Postema, *Classical Common Law Jurisprudence (Part II)*, 3 OXFORD U. COMMONWEALTH L.J. 1, 10 (2003).

¹⁸⁹ *Id.*

Although this would be a strong argument against AI judges, AI judges can in fact be influenced by in-trial deliberation and argument. For example, when evaluating damages or the seriousness of results in criminal cases, STCR's programs are designed to consider the testimony of the victims about their suffering from the crimes and the explanations offered by the defendants in legal documents.¹⁹⁰ China's STCR is currently at an elementary level in this aspect. A fact may automatically become a factor if the algorithm has a rule to evaluate the importance of the fact and a standard to evaluate the fact against. Further, a fact may have different legal meanings if the algorithms incorporate the perspectives of the victims.¹⁹¹ Specification here does not equal unification. This capacity is rooted in the foundations of AI technology and is necessary for AI judges to act or think humanly or rationally because in many situations, the task environment is dynamic, partially observable, and unknown.¹⁹² In such situations, AI judges may not find their action in a lookup table, so the system has to learn how to make reasonable decisions.¹⁹³

There are several routes to strengthening AI's capacity to interact with its task environment, including symbolic, connectional, logic-based, anti-logic, and statistical approaches.¹⁹⁴ For example, the anti-logic approach specifically targets difficult problems in vision and natural language processing that require ad hoc solutions.¹⁹⁵ AI can automatically update its knowledge of factors if it includes in its function a model that simulates real-world trial debates and can determine in what situations a fact becomes a factor.¹⁹⁶ It is foreseeable that as the sensors of machines improve to capture information from human behaviors, facial expressions, and other physical symptoms, AI's capacity to consider in-trial deliberation and argument will be substantively improved and may surpass human judges in catching and analyzing those pieces of information. In

¹⁹⁰ Interviews with Software Designers and Programmers for Zhejiang Prosecutor's Office (Apr. 2018); Interviews and Field Observations with Prosecutors, Software Designers, and Programmers at Shanghai Procuratorate, in Shanghai, China (Apr. 2018).

¹⁹¹ Interviews with Software Designers and Programmers for Zhejiang Prosecutor's Office (Apr. 2018); Interviews and Field Observations with Prosecutors, Software Designers, and Programmers at Shanghai Procuratorate, in Shanghai, China (Apr. 2018).

¹⁹² Wenmin, *supra* note 166, at ch. 2.3.

¹⁹³ *Id.*

¹⁹⁴ *Id.* at ch. 2.1.

¹⁹⁵ Professors Marvin Minsky and Roger Schank from MIT uphold such an approach. *Id.*

¹⁹⁶ Such as the types of AI machines as a model-based agent and a learning agent. *Id.* at ch. 2.5.

addition, neuroscience and cognitive psychology are foundations of AI, which study how brains process information and how humans think and act.¹⁹⁷ Incorporating these learnings into an AI judge would make AI judges more similar to human judges in this regard.

Moreover, judges' ability to incrementally update law is disciplined and reason-based, which is possible for machines to learn. The reason to uphold the lawmaking role of common law judges in deciding cases is that judges do not make law according to their arbitrary wills but through their identification and articulation of a disciplined, shared reasonableness.¹⁹⁸ Judges derive this competence from their legal training, extraordinary reasoning ability, and moral standards. Judges are required to specify the reasoning behind their decisions to better guide the people subject to their decisions and ensure public accountability.¹⁹⁹ Since judicial decision-making needs to be a disciplined, reasoned, and balanced process, either through a formalistic or dynamic interpretation of doctrines or enacted texts in order to maintain legal autonomy, such a process is not dependent on jurist arbitrariness or unfounded intuitions. Judicial decision-making should be replicable in models to some degree and incorporated in AI programs. Such models can be constantly refined by machine learning based on the critiques and responses of human judges on machine suggestions.²⁰⁰

Furthermore, AI judges provide an advantage over human judges in that the former are more disciplined, objective, and logical than the latter. Both legal realists and legal psychological studies have shown that judges can be biased and make decisions intentionally or subconsciously according to personal preferences and discriminations.²⁰¹ In contrast, AI judges decide according to the algorithms, which are specific without any unclear point or disputes of uncertain meaning. Although machine decision-making can have the "black box" problem, leaving the human unaware of a machine's process,²⁰² literature has already noted that such a problem could be resolved by requiring machines to state the reasoning

¹⁹⁷ *Id.* at ch. 1.2.

¹⁹⁸ Postema, *supra* note 189, at 2–11.

¹⁹⁹ *Id.*

²⁰⁰ See generally Wenmin, *supra* note 166 (the types of AI machines as a model-based agent and a learning agent).

²⁰¹ LLEWELLYN, *supra* note 32, at 62–120; Jonathan Baron & John C. Hershey, *Outcome Bias in Decision Evaluation*, 54 J. PERSONALITY & SOC. PSYCHOL. 569, 569 (1988); Erin M. Harley, *Hindsight Bias in Legal Decision Making*, 25 SOC. COGNITION 48, 55 (2007).

²⁰² PASQUALE, *supra* note 175.

underlying their decisions (at the cost of efficiency).²⁰³ Although machines too may be biased and discriminative, such biases can be disclosed by checking machine suggestions against the indicators of suspected discriminations, such as using regression models to check whether extralegal factors, e.g., sex and social class, have effects at a significant level. Once detected, bias or discrimination can be corrected or prevented by refining the algorithms, adding random factors, and generating unbiased training samples.²⁰⁴ With algorithmic affirmative action, highly specified AI decision-making has been the preferred method for reducing discriminatory or biased decisions of open-ended human judgments, which may happen subconsciously and can be difficult to correct.²⁰⁵

3. *Human Judge-Made Law and Normative Commitments*

Human judges may be biased and arbitrary, but replacing them with machines still sounds unimaginable to many people. As Oliver Wendell Holmes said, “[t]he life of the law has not been logic; it has been experience.”²⁰⁶ The life experience of human judges has formed the basis for their intuition and sense of justice and custom in the community. This enables human judges to find or create the best solution for the case at hand, to fit within the appropriate legal framework and social values. Although many models in disciplines such as economics and social sciences appear to simulate the world, the real world is believed to be more fluid and complicated than these models suggest. The more factors to be considered, the more difficult it is for AI to model the situation.

Moreover, machines lack the creativity that human judges have. Once the best solution for an issue has been identified, justification is easy. But often, reason alone is insufficient to lead to the solution—reason cannot produce creativity. Reason works to make unknown things known when the relationship between what is known and what is unknown is obvious. Conversely, creation and intuition work when such a relationship is not clearly known. Further, machines reason and decide by performing

²⁰³ A goal model or a utility model for AI can be used to reflect the AI’s decision-making process. *See generally* Wenmin, *supra* note 166196; *see generally* Kroll et al., *supra* note 24.

²⁰⁴ Anupam Chander, *The Racist Algorithm?*, 115 MICH. L. REV. 1023, 1025 (2017).

²⁰⁵ *Id.* at 1025–27; *see also* Elise J. Percy, Joseph L. Hoffmann, & Steven J. Sherman, “Sticky Metaphors” and the Persistence of Traditional Voluntary Manslaughter Doctrine, 44 U. MICH. J.L. REFORM 383 (2011).

²⁰⁶ OLIVER WENDELL HOLMES, JR., THE COMMON LAW 1 (1881).

calculations on large amounts of data while humans usually reason when there is only a small amount of information.

Besides the advantages of human judges in judicial creativity over AI judges, the goal of the rule of law is to realize concepts such as justice and fairness that are rooted in human feelings. Reasoning in past case decisions alone may be insufficient to recognize these considerations. Sometimes, decisions merely confirm or modify preexisting feelings, which come from the intuitive sense of justice of the individuals involved in the case. Such feelings cannot be digitized and thus cannot be “felt” by machines. Even if the feelings could be digitized and read by machines, arguing that machines can embody human feelings is controversial—this mirrors the Chinese Room Argument against the Turing Test.²⁰⁷ In law, such an argument has another layer of strength: individuals facing AI judges may not believe that their feelings are being fully considered. Only when a human judge is the decision-maker, with human emotions and a limited life span, will litigants believe their feelings are fully considered in making decisions. This makes it easier for diverse views to reach congruence, thus making the decisions more acceptable to litigants, ultimately affecting the legitimacy of AI judges.

Moreover, people tend to trust and respect the decisions of human judges who, generally, are perceived by the community to be reasonable, prudent, disciplined, and impartial. Historically, human judges have played heroic roles and have been relatively powerful, especially when working together, because of their reputations, well-recognized capacity, and high socioeconomic status.²⁰⁸ Such power works to enhance the force of judicial decisions. More importantly, both the characteristics of human judges and the power they have are essential in upholding the separation of powers, liberty, and the counter-majoritarian role of the courts.²⁰⁹ Replacing human judges with AI judges removes the advantages that human judges offer, such as generating creative judicial solutions; providing the means for incubating new rights, obligations, and legal doctrines; persuading the general public; balancing against other political powers; and protecting disadvantaged parties.

The advantages of human judges over AI judges are sensible and persuasive, which is why the common law system remains nearly unchanged in the digital era. Nevertheless, the judicial system faces

²⁰⁷ Searle, *supra* note 183, at 418.

²⁰⁸ Cross, *supra* note 78, at 53.

²⁰⁹ *See id.* at 21–59.

exciting advances made possible by big data²¹⁰ and AI. Underlying the arguments supporting human judges' advantages over AI judges is a strong faith in the subjectivity or mastership of humans over machines. This strong faith in humans is reflected in the normative and technical perspective that lawmaking in certain difficult cases, especially those requiring sophisticated tasks, is best reserved for humans. However, having AI judges to deal with simple, recurring cases that are RMR or PMR does not mean that human judges will be replaced in all cases—particularly those that are more complex.

As discussed, machines may learn from human judges' experiences by building a knowledge graph, summarizing factors, and having judges manually label the judgments that are used to train machines.²¹¹ However, some legal tasks are too difficult or differentiated to be resolved by machines. For example, in building China's STCR system, experts originally tried to train machines to resolve intentional murder cases.²¹² This failed, however, because there have been too few cases to provide sufficient training materials, and the facts of intentional murder vary greatly and cannot be modeled.²¹³ As summarized by the chief designer of the essential STCR software, machines need more than 10,000 cases to grasp the life experiences of human experts in order to achieve an accuracy rate of around seventy percent. A life experience includes analyzing whether a statement reflects the motives of the suspects and whether the same statement represents their means to conduct the crimes.²¹⁴ However, given the great costs a machine error may impose, machines should only replace human judges in tasks where the accuracy rate of machine performance is high enough to approximate human accuracy. So, even with RMR tasks, human supervision cannot be removed until accuracy improves and stabilizes. Thus, a more accurate and suitable conclusion is that instead of replacing human judges, AI judges can help relieve human judges from easy cases where the fact

²¹⁰ “‘Big Data’ is a generalized, imprecise term that refers to the use of large data sets in data science and predictive analytics.” Kate Crawford & Jason Schultz, *Big Data and Due Process: Toward a Framework to Redress Predictive Privacy Harms*, 55 B.C.L. REV. 93, 96 (2014).

²¹¹ See discussion, *supra* Part IV, C.

²¹² Interviews and Field Observations with Software Designers and Programmers of Shanghai Procuratorate, Shanghai, China (Apr. 2018).

²¹³ *Id.*

²¹⁴ Interviews with Software Designers and Programmers for Zhejiang Prosecutor's Office (Apr. 2018); Interviews and Field Observations with Prosecutors, Software Designers, and Programmers at Shanghai Procuratorate, in Shanghai, China (Apr. 2018).

patterns can be delineated and the decision-making is routine—allowing human judges to focus on complex or new cases. For example, although China’s STCR originally tried to cover many crimes, only models of a few crimes have been considered mature enough to be used, namely dangerous driving and theft.²¹⁵ In the Zhejiang province, there have been around 5,000 cases of dangerous driving or theft decided with machines in which the machines extracted factors and recommended resolutions under human judges’ supervision. This represents more than seventy percent of the cases that fell within the scope of simplified procedures.²¹⁶ Because of their frequent occurrences and limited types of fact patterns, models can easily be built and machines can easily be trained for cases involving these crimes. This approach saves significant human effort in resolving these types of cases.

In RMR or PMR tasks where machines have been trained to make decisions similar to those of experienced human judges, the value of judicial creativity is insignificant, and the loss of judicial creativity could be accounted for by modifying algorithms and inputs periodically. This is possible because fact patterns in these cases do not change within a certain period. Machine-generated virtual cases could provide alternative ways to test the effects and soundness of new judicial solutions, while helping predict litigants’ responses to different kinds of judicial decisions, without having to experiment on real people and cases.²¹⁷ Besides, although it is true that people feel more comfortable communicating with human judges—and people respect human judicial decisions—society is fundamentally changing. Communicating with AI robots, machines, and software is becoming normal for people who grew up with technology as a tool in their daily lives. Moreover, since these cases do not vary much

²¹⁵ Shanghai’s High Procuratorate has developed models for eight crimes. See *Secret “206”: The Future Artificial Intelligence of the Court* (揭秘“206”：法院未来的人工智能图景), JUST. ONLINE (正义在线) (June 10, 2017), http://www.sohu.com/a/155948492_434781 [https://perma.cc/NPJ7-HD52]. Zhejiang provincial procuratorate has developed models mainly for the crimes of dangerous driving and theft, according to the interviews. Interviews and Observations with Prosecutors at Zhejiang Provincial Procuratorate (Apr. 2018); Interviews with Software Designers and Programmers for Zhejiang Procuratorates (Apr. 2018).

²¹⁶ Such models are developed by Zhejiang procuratorates and are currently in use throughout Zhejiang procuratorates. Interviews and Observations with Prosecutors at Zhejiang Provincial Procuratorate (Apr. 2018); Interviews with Software Designers and Programmers for Zhejiang Procuratorates (Apr. 2018).

²¹⁷ Coglianese & Lehr, *supra* note 21, at 1204–05.

from cases with similar arguments that were previously decided by human judges, repeating these trials may become redundant and inefficient.

The concern that judicial power would decrease and be insufficient to balance against other political powers if machines replaced human judges in a significant number of cases is unsupported. First, no matter how intelligent a machine is, it is acting according to its algorithms, which are designed by human judges and programmers. If used well, machines can help human judges handle a greater number of cases with more efficiency than currently possible. This will lead to reductions in judicial costs and decrease the burdens and costs of litigation. This may help make justice more accessible to ordinary people and should be viewed as an enhancement to judicial power. Second, as mentioned in the Introduction, AI machines are already being used in government agencies.²¹⁸ As AI continues to develop, the increased use of AI in other political realms is foreseeable, making operations more efficient and effective. If the judicial branch lacks AI's benefits it will become comparatively disadvantaged. Third, as society is filled with machines and operates at a faster pace, the judiciary faces many new demands that are difficult to satisfy without AI machines. For example, the judiciary needs to evaluate evidence materials produced by society's non-judiciary AI machines and deal with large amounts of information that cannot be handled manually. If judges are not equipped with AI designed according to their needs, courts will become more reliant on experts hired by litigants. As disputes from online transactions and worldwide customers increase, the demand for courts to resolve these cases online will increase as well. Remote trials may be crucial in some instances because of difficulties in physically holding court, e.g., if litigants reside in different countries.

These arguments do not suggest that human judges need to be replaced by machines. What is argued here is that the judicial system should be open-minded and creative regarding AI's use in judicial decisions. Two factors further strengthen this opinion and explain China's motivation in developing STCR. First, at the outset, machines need human supervision and a significant amount of training to become suitable to complete RMR tasks—the use of machines in real case work produces the data necessary to train machines for PMR tasks. In other words, AI machines need to be *used* to be successful. The more they are used—and corrected—by human judges, the better and more reasonable their suggestions and solutions will be. This process not only trains machines to

²¹⁸ *Id.*

be more advanced but also teaches the human judiciary how to communicate with machines and utilize machines in their case work. Human supervision works as a safeguard for the use of AI judges. Second, just like with a human judge, if a litigant feels the AI judge made a mistake in the case decision, the litigant should have the capacity to appeal to higher level courts to correct the judgment. Additionally, the government may create new procedural rights and institutional measures to protect litigants from machine errors and provide litigants with remedies. For example, AI developers can implement more error discovering algorithms and tests to find machine errors.²¹⁹ In these aspects, the AI legal community needs to research machine errors, create new institutions, and maintain environments that are friendly and suitable to machines.²²⁰ As discussed, AI judges have numerous advantages over human judges, such as the ability to process large amounts of information, quickly perform complicated calculations, provide transparent decision-making logic, and avoid personal preferences and biases.

VI. CONCLUSION

This article discusses the STCR system that is being developed in China and compares it with the common law. STCR, discussed throughout, refers to a series of systems that helps find past cases of the same type and make prior similar cases binding on the case at issue. Having analyzed common law characteristics, like *stare decisis* and incrementally updating the law, this article argues that STCR is an exceptional version of common law in China, which upholds the leadership of the party center. STCR's *stare decisis* characteristic and nondemocratic, normative commitments provide an extreme case to study the intrinsic relationship between the common law and its well-recognized normative functions and advantages. This article further explains that STCR is part of China's national strategy to increase the court system's intelligence and upgrade its governance capacity. Because precedents produce the big data necessary for AI to be applied in the judiciary, *stare decisis* has become acceptable and welcome in China. This is part of the reason that STCR has been built relatively quickly with few roadblocks.

²¹⁹ There have been many algorithms to discover or self-check machine errors and verify whether machines return results that are truly desired by programmers.

²²⁰ Machines can bring about new types of errors. See Chessman, *supra* note 158.

STCR serves as a case study for improving the intelligence of the common law system. Part IV analogized STCR's intelligent programs into three types of workers: advanced legal research assistants, advanced legal analysts, and judges. The virtues of STCR include providing more accurate and comprehensive research, reducing litigation costs, answering more advanced and difficult legal questions, assisting new judges, increasing judicial efficiency, and decreasing judicial workload. But STCR does not replace the human judiciary, and it is incorrect to conclude that STCR tries to create a robot judiciary. Although machines may complete more complicated and abstract tasks than before, they are under human supervision, and their suggestions can be corrected or ignored by a human judiciary. Moreover, it is still humans who make judicial decisions because humans can ignore or alter an AI judge's decision.

However, these machines can likely be trained and improved to provide suggestions that are always deemed reasonable and, thus, accepted by human judges. The notion that machines may replace humans in judicial decision-making may cause concern surrounding the development and application of AI. Such concerns are reasonable because, although STCR's intelligent programs can be viewed as advanced versions of previously used machines, AI machines are programmed to act or think humanly or rationally, a notion that makes the new system inherently different from the non-intelligent machines of the past. Facing these concerns, difficult decisions may need to be made as to whether to allow AI's application in the judiciary or to develop AI machines that can complete judicial decision-making tasks.

This article provides a machine-centered taxonomy dividing judicial tasks into those, which are readily machine-resolvable (RMR), possibly machine-resolvable (PMR), and impossibly machine-resolvable (IMR). It then argues that AI's application in the judiciary can relieve human judges from RMR and PMR tasks so they can spend more time on IMR tasks. Further, this article examines the impact of AI's possible systematic substitution for human judges in RMR and PMR tasks within the common law. This includes a discussion of *stare decisis*, incrementally updating law, judicial lawmaking, and other normative commitments.

In these tasks, AI judges have advantages over human judges because AI judges strictly follow precedents, restrict improper judicial discretion, prevent personal biases and preferences of individual judges, handle large amounts of information, complete complicated calculative balances, and discover statistical representations of variations of fact

patterns and legal factors. These advantages come from AI machines' algorithmic functions, which combine both human judges' experience and legal reasoning logic. On the other side, the advantages of human judges in terms of judicial creativity, sensitivity, and communication with litigants are less valued in RMR and PMR tasks than in IMR tasks. As for transparency and reason, AI judges may or may not be disadvantaged compared to human judges given that algorithms may be designed to delineate machines' decision-making processes while human judges are subject to personal biases. Although AI machines need to have specified instructions, this does not mean AI can only make invariable, mechanical, and unified case decisions. It is possible for AI to allow some degree of judicial discretion, legal vagueness, and individual specialty. Moreover, in light of AI's increasing number of applications in private and public fields, AI judges can help to empower human judges, including relieving human judges from large amount of simple cases, increasing the efficiency and the availability of judicial system to be compatible with modern society, decreasing the cost of litigants, and helping more ordinary people achieve justice.

Ultimately, the competitors of humans are still humans—not robots. Humans compete with humans for resources, social status, and profits. Machines are intelligent and are meant to assist humans who exercise dominion over machines, at least for the foreseeable future. Society is currently in a transitional period where human judges must learn to train and utilize AI to facilitate their work. The judiciary should participate in the process to influence the development of AI machines' thought processes. Thus, this article argues that AI will not fundamentally change the intrinsic character of the common law system and that AI's application in the judiciary should be encouraged. Machine intelligence provides another route to resolve legal issues. Judges' participation in the development of AI programs is crucial to design reasonable algorithms to complete judicial tasks and correct machine errors. In addition, there is a fundamental question of how these new measures should be pushed forward and carried out. China provides a central, governmental-leading model of implementing the STCR system, which has been deemed the Chinese mode of development. In this model, the central power selects certain places to experiment with new systems and then generalizes the experiences nationwide. In other societies, however, other modes of development may be more appropriate. The leading power can be either the central or local government, or a public or private entity, with each model having its own localized and time-sensitive values and costs.