

# Report on the 2nd Symposium on Artificial Intelligence and Law (SAIL) 2022

Saptarshi Ghosh

IIT Kharagpur  
India

saptarshi@cse.iitkgp.ac.in

Kripabandhu Ghosh

IISER Kolkata  
India

kripaghosh@iiserkol.ac.in

Debasis Ganguly

University of Glasgow  
UK

debasis.ganguly@glasgow.ac.uk

Arnab Bhattacharya

IIT Kanpur  
India

arnabb@iitk.ac.in

Partha Pratim Chakrabarti

IIT Kharagpur  
India

ppchak@cse.iitkgp.ac.in

Shouvik Guha

WBNUS Kolkata  
India

shouvikkumarguha@nujs.edu

Arindam Pal

CSIRO & UNSW Sydney  
Australia

arindamp@gmail.com

Koustav Rudra

IIT Dhanbad  
India

koustav@iitism.ac.in

Prasenjit Majumder

DAIICT, Gandhinagar  
India

p.majumder@daiict.ac.in

Dwaipayan Roy

IISER Kolkata  
India

dwaipayan.roy@iiserkol.ac.in

Ayan Bandopadhyay

TCG Crest, Kolkata  
India

bandyopadhyay.ayan@gmail.com

Procheta Sen

University College London  
UK

p.sen@ucl.ac.uk

Paheli Bhattacharya

IIT Kharagpur  
India

paheli.cse.iitkgp@gmail.com

Aniket Deroy

IIT Kharagpur  
India

roydanik18@kgpian.iitkgp.ac.in

Upal Bhattacharya

IISER Kolkata  
India

upal.bhattacharya@gmail.com

Subinay Adhikary

IISER Kolkata  
India

sa21rs094@iiserkol.ac.in

Subham Kumar Nigam

IIT Kanpur  
India

sknigam@iitk.ac.in

## Abstract

This report describes the 2<sup>nd</sup> edition of the Symposium on Artificial Intelligence and Law (SAIL) organized as a virtual event during June 6–9, 2022. The aim of SAIL is to bring together experts from the industry and the academia to discuss the scope and future of AI as applied to the legal domain. The symposium is also meant to foster collaborations between researchers of the following communities: Law, Artificial Intelligence, Data Mining,

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Information Retrieval, and Natural Language Processing. Eminent researchers working on AI and Law in both the academia and the industry were invited to deliver talks at this symposium.

**Date:** 6–9 June, 2022.

**Website:** <https://sites.google.com/view/sail-2022/>.

## 1 Introduction and Motivation for SAIL

In recent years, the number of digitized legal documents (e.g. court case proceedings, policy documents) has increased exponentially; e.g., according to an Indian Government website<sup>1</sup>, there are almost 31 million criminal cases in India registered in the last 31 years. It has become practically impossible for Law practitioners to manually assess each document. As a result, there is a growing interest in applying Artificial Intelligence methods (including Natural Language Processing, Machine Learning and Information Retrieval methods) over legal text to support legal practitioners as well as common people seeking assistance from the law system [Zhong et al., 2020]. Various NLP and IR methods have been used in recent years on problems such as legal case retrieval [Rabelo et al., 2019], legal document summarization [Bhattacharya et al., 2019], legal judgement prediction [Malik et al., 2021], estimating legal document similarity [Bhattacharya et al., 2020], and so on.

Along the lines of these interests, the Symposium on Artificial Intelligence and Law (SAIL) series was started in 2021, to bring together experts from Industry and Academia to discuss the future of AI and Law. The Symposium series aims to provide a venue for AI-Law researchers and Law professionals to come together, present and discuss research results, use cases, innovative ideas, challenges, and opportunities that arise from applications of AI in the Legal Domain. The symposium was also meant to foster collaborations between the Legal and the Artificial Intelligence (Data Mining, Information Retrieval, Natural Language Processing, and Machine Learning) communities.

### 1.1 SAIL-2021

The first event in the SAIL series was SAIL-2021<sup>2</sup> that was held from 31<sup>st</sup> May to 4<sup>th</sup> June, 2021 as a virtual (online) event. SAIL-2021 was co-organized by AI researchers from IIT Kharagpur, IIT Kanpur, IISER Kolkata, TCG CREST (all from India) and CSIRO Australia, and Law researchers from WBNUJS and Vidhi Centre for Legal Policy, India. The symposium was graced by talks from eminent experts in AI and Law from all over the world<sup>3</sup>. There were also two panel discussions participated by eminent AI and Law researchers from academia and industry<sup>4</sup>. The SAIL event received accolades from the AI and Law community, which encouraged us to host the second edition of SAIL, viz. SAIL 2022.

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<sup>1</sup><https://njdg.ecourts.gov.in/njdgnew/index.php>

<sup>2</sup><https://sites.google.com/view/sail-2021/>

<sup>3</sup>For the complete speaker list, see <https://sites.google.com/view/sail-2021/invited-talks>

<sup>4</sup>Details at <https://sites.google.com/view/sail-2021/panel-discussion>

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## 1.2 SAIL-2022

SAIL-2022<sup>5</sup> was again a virtual event from 6<sup>th</sup> to 9<sup>th</sup> June 2022. The symposium was organized by AI researchers from IIT Kharagpur, IIT Kanpur, IIT(ISM) Dhanbad, IISER Kolkata, TCG CREST, CSIRO Australia, University of Glasgow, University College London, and Law researchers from WBNUJS, Kolkata, India.

There were eight invited speakers from both Industry and Academia to share their insights regarding their works in Legal and AI domain. The next section describes in detail the invited talks at SAIL-2022.

There were 301 registered participants for SAIL-2022, out of which 21.6% were students of AI, 13.3% were students of Law, 16% were academic faculty/researchers on AI, 8.6% were academic faculty/researchers on Law, 9.3% were Law practitioners and 6.6% were Industry researchers. In addition to participation from India, there were participants from 7 other countries.

## 2 Invited Talks at SAIL-2022

Here we enlist the eight invited talks delivered in SAIL 2022. We are grateful to all the speakers for their insightful talks and the discussions in the Q&A sessions. The video recordings of the invited talks are available on the SAIL YouTube channel<sup>6</sup> which also contains the recordings of the sessions of SAIL-2021.

### 2.1 Invited Talk #1

**Speaker Bio:** The first speaker, Ken Satoh, is a professor at National Institute of Informatics in Japan. He is very much interested in application of logical framework to law such as a support system for judges and a compliance mechanism of AI.

**Title:** Interactive System for Arranging Issues based on PROLEG in Civil Litigation.

**Abstract:** “We have been developing the PROLEG (PROlog-based LEGal reasoning support) system to simulate judgement reasoning after all the relevant facts are determined. In this work, we modify the PROLEG system to support arranging issues in civil litigation. Given a desired effect requested by one party, our interactive system (which we call int-PROLEG) automatically calculates possible justifications for the desired effect using PROLEG rules related with the Japanese civil law and case rules established by the Japanese supreme court.”

### 2.2 Invited Talk #2

**Speaker Bio:** The second speaker, Eliot Ash, is an assistant professor of Law, Economics, and Data Science at ETH Zurich’s Center for Law & Economics. He works on empirical analysis of the law and legal system using techniques from econometrics, natural language processing, and

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<sup>5</sup><https://sites.google.com/view/sail-2022/>

<sup>6</sup><https://www.youtube.com/channel/UCUC90NtXVgWg4V4gdqHbwhg>

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machine learning mainly sharing his experience on legal information extraction.

**Title:** Legal Information Extraction.

**Abstract:** “Legal documents often tell stories, and NLP tools can help us identify and quantify the elements of those stories. In this talk, I will present research on using information extraction technologies – syntactic parsing, semantic role labeling, entity resolution – to the task of automated understanding and interpretation of legal documents. Further, I will explore machine reading comprehension using pre-trained language models as an alternative to the more structured approaches. The main application is a large corpus of 30,000 collective bargaining agreements from Canada.”

### 2.3 Invited Talk #3

**Speaker Bio:** The third speaker, Michal Araszkievicz, is an assistant professor (adiunkt) in the Department of Legal Theory at the Jagiellonian University in Kraków. He specializes in theories of legal reasoning and argumentation, legal interpretation, case-based reasoning as well as in normative aspects of Artificial Intelligence, including the right to explanation.

**Title:** Conceptual Structures in Computational Models of Legal Knowledge and in Human Minds.

**Abstract:** “Concepts are one of the most important and the most investigated types of mental representations in cognitive science. They are considered to be the crucial building blocks of human knowledge and to enable different types of conscious and non-conscious inference. In particular, they play essential role in the process of language acquisition and use. In computational modeling of legal reasoning there exists a tension between the line of research stressing the role of concepts and, on the other hand, the stream which avoids conceptual modeling. I am going to explore the strengths and weaknesses of either of the approaches and outline a proposal of a middle ground theory. The three main facets of this theory are (1) linking conceptual modeling to linguistic indicators; (2) indicating a catalogue of different conceptual structures and (3) employing the notion of conceptual net and conceptual variations.”

### 2.4 Invited Talk #4

**Speaker Bio:** Karl Branting delivered the fourth invited talk, mainly sharing his experience on legal information extraction. Karl Branting is a Chief Scientist in Human Language Technology department of The MITRE Corporation, USA.

**Title:** A Computational Model of Facilitation in Online Dispute Resolution.

**Abstract:** “Online Dispute Resolution (ODR) is an alternative to traditional litigation that helps litigants without an attorney and improves court efficiency. Most ODR systems require a neutral facilitator, but there is a shortage of facilitators that limits the adoption of ODR systems. This technology uses computational linguistics and machine learning to (1) monitor cases to detect

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situations requiring immediate attention and (2) automate selection of standard text messages appropriate to the current state of the negotiations. This technology can compensate for shortages of facilitators by improving the efficiency of experienced facilitators, assisting novice facilitators, and providing autonomous facilitation.”

## 2.5 Invited Talk #5

**Speaker Bio:** Bruce Hedin delivered the fifth invited talk of the symposium. He is a leading expert in the assessment of the effectiveness of advanced search and analytics technologies at performing legal tasks. As a consultant, he supports clients in the design and oversight of sampling and measurement protocols to validate the results of AI-enabled review technologies and provides guidance to counsel engaged in meet-and-confer discussions regarding the use of AI-enabled review and retrieval processes.

**Title:** Protocols and Evidence: Operationalizing Principles for the Trustworthy Adoption and Use of AI in the Domain of the Law.

**Abstract:** “This presentation will consider the question of how we ensure that AI-enabled technologies, when adopted by legal practitioners, are applied in an effective and trustworthy manner. Using fact-finding in civil and criminal proceedings as a case study, a task to which AI-enabled technologies have been applied for over 15 years (often called “e-discovery” in the US), we will consider challenges to the trustworthy adoption of advanced technologies in the real-world practice of law. We will then consider the means to meeting those challenges, focusing chiefly on the development of practically viable protocols for gathering the evidence needed to ground the adoption and use of AI-enabled technologies in a sound understanding of the technologies’ effectiveness. Having reviewed the specific circumstances of legal fact-finding, we will conclude by drawing generally applicable lessons for ensuring that, to the extent that AI is adopted in the service of the law, it is done so on the basis of an informed trust.”

## 2.6 Invited Talk #6

**Speaker Bio:** Trevor J.M. Bench-Capon delivered the sixth invited talk. He has researched into Artificial Intelligence and Law since the early 1980s, initially at Imperial College London, but since 1987 at the University of Liverpool, and has written some 300 journal and conference papers.

**Title:** Modelling reasoning with legal cases using argumentation schemes.

**Abstract:** “Modelling the arguments relevant to the consideration of legal cases has been a central topic of AI and Law since its very beginnings, and a number of approaches have been developed. I will describe how these various approaches can complement one another by being seen as addressing different stages of the reasoning process. Each stage can be modelled using argumentation schemes. I will look at one stage in particular, the move from facts to reasons to decide for one or other of the parties, and present some novel argumentation schemes to model this stage.”

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## 2.7 Invited Talk #7

**Speaker Bio:** The seventh talk was delivered by Graham McDonald, lecturer in Information Retrieval at the School of Computing Science, University of Glasgow. His research interests focus on developing methods for automatically classifying sensitive information and developing active learning strategies that can adapt to and learn from human users in decision support systems.

**Title:** Maintaining Open Government through Technology-Assisted Sensitivity Review.

**Abstract:** “Open government policies provide citizens the right to access government documents through Freedom of Information laws. However, in the UK and many other countries, exemptions to Freedom of Information laws prohibit the disclosure of specific types of information that might cause harm to individuals, organizations, or nations. Therefore, it is vital that government documents are manually reviewed to identify and protect any sensitive information before the documents can be released to the public. The transition to digital documents (including emails) has brought new challenges in reviewing documents for public release, and there is a need for information retrieval technologies to be able to assist the digital sensitivity review process. However, automatic sensitivity identification is a challenging task, since sensitivity is typically context-dependent and results from a combination of factors, such as who said what about whom and when. I will discuss some of the challenges in automatically identifying sensitive information and present some of our work on developing approaches for assisting human reviewers to sensitively review large collections of digital documents.”

## 2.8 Invited Talk 8

**Speaker Bio:** Tom Vacek delivered the final invited talk of SAIL 2022. He is a senior Applied Research Scientist at Thomson Reuters. Since 2012, he has had significant contributions to the Research Recommendations, Litigation Analytics, and Quick Check products and has publications at venues for legal AI and basic machine learning research.

**Title:** Brief Analysis: Distinguishing Possible, Impossible, and Wishful Thinking.

**Abstract:** “Westlaw Quick Check is an established brief analysis product, competing with products from CaseText, Lexis, and Bloomberg Law. This talk will tell how the Quick Check team learned what customers want and how to provide solutions despite major unsolved basic research questions in AI and Law.”

## 3 Concluding Remarks

In SAIL 2022, we had the opportunity to discuss about the emerging topics in legal AI with the invited speakers. The topics that we discussed can broadly be categorised into two areas. One is about how we can address the data scarcity problem in Legal AI domain. The other one is about applying different existing ML and NLP methodologies for different applications in Legal AI (e.g.

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supporting facilitators in Law, automatic summary generation, automatic bail prediction). The discussions with the invited speakers were really useful for all.

The video recordings of all the sessions of SAIL-2021 and SAIL-2022 are available on the SAIL YouTube channel<sup>7</sup>. We plan to organise future editions SAIL, incorporating all the feedback and suggestions obtained from SAIL 2021 and SAIL 2022.

## Acknowledgements

The organizers express their gratitude to the invited speakers for their invaluable contributions to the symposium. The organizers would also like to thank all the student volunteers for successfully hosting the virtual event, and all the participants for their interest in the symposium.

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<sup>7</sup><https://www.youtube.com/channel/UCUC90NtXVgWg4V4gdqHbwhg>