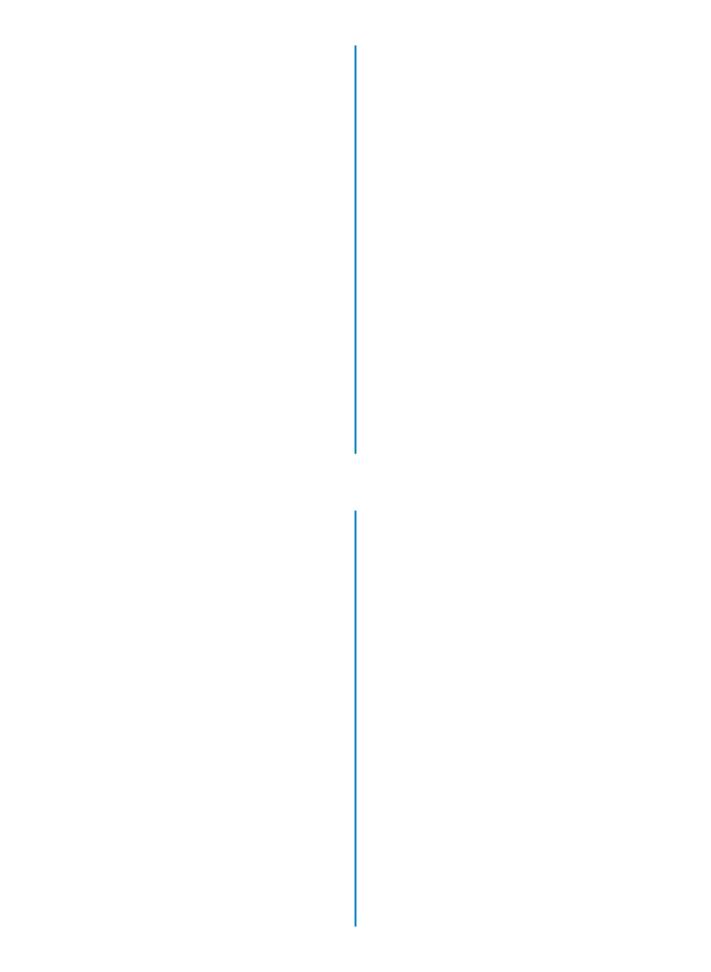
### Seoul National University Al Policy Initiative

### 서울대학교 인공지능정책 이니셔티브

Report 활동보고서





# Seoul National University Al Policy Initiative

서울대학교 인공지능정책 이니셔티브

Report

활동보고서

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# Introduction

Various policy issues are being raised due to the rapid development of artificial intelligence technology and social changes resulting from its adoption. SNU AI Policy Initiative (SAPI) reviews and analyzes social challenges that the data-driven artificial intelligence technology will bring. SAPI aims to address these issues through interdisciplinary research by combining disciplines such as technology, humanities, social science, and law. SAPI launched in April 2017 with the vision of becoming a 'Social Lab', a research platform for various disciplines within the University. SAPI is leading research in the field of artificial intelligence & law and is actively engaged in joint research and cooperation with domestic and international experts in fields related to data and artificial intelligence.

Co-Directors

Haksoo Ko (Professor, SNU Law)

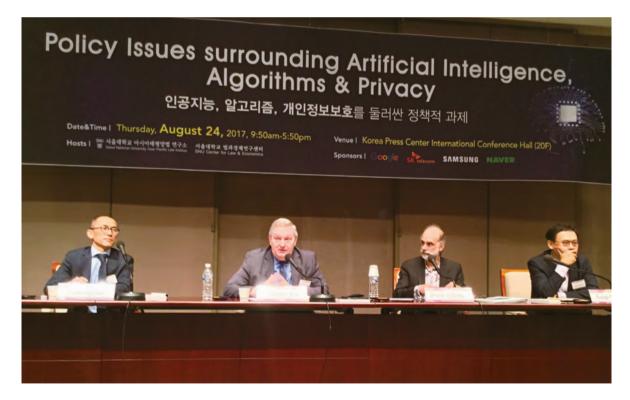
Yong Lim (Associate Professor, SNU Law)

# **Past Activities**

1	Seoul Al Policy Conference 2017–2020
2	2020 COVID-19 Webinar
3	SAPI Book Publishing Event – Data Ownership: Who Owns My Data?
4	SAPI Issue Paper Seminars
5	Other Academic Events
6	DAIG (Data & AI Governance) Magazine Publication
7	Book Publication
8	Issue Paper Publication

2017 Conference

Policy Issues surrounding Al, Algorithms & Privacy



From the left, Haksoo Ko (Seoul National University), Christopher Kuner (Vrije Universiteit Brussel), Bruce Schneier (Harvard University), Kangwon Lee (SK Telecom)

At the 1st Seoul Al Policy Conference in 2017, the panel discussed the algorithm technology and privacy policy. The opening session introduced major policy issues regarding artificial intelligence, focusing on algorithm technology and privacy issues. Session 1 panels discussed policy issues of artificial intelligence and big data in the context of competition, and Session 2 panels discussed policy issues pertaining to the algorithm technology. Session 3 panels focused on the policy issues regarding privacy and data protection.

Haksoo Ko	Seoul National University
Young-joon Kwon	Seoul National University
Soo-yong Shin	Sungkyunkwan University
Kangwon Lee	SK Telecom
Dongjin Lee	Seoul National University
Sun Goo Lee	Yonsei University
Seung Woong Lee	IBM
Yong Lim	Seoul National University
Dae-Sik Hong	Sogang University
Andrew Selbst	Yale Information Society Project; Georgetown University Law Center
Bruce Schneier	Berkman Klein Center, Harvard University
Christopher Kuner	Vrije Universiteit Brussel; University of Copenhagen; University of Cambridge; London School of Economics and Political Science; Wilson Sonsini Goodrich & Rosati
Felix Wu	Cardozo School of Law
Joshua Kroll	UC Berkeley School of Information
Khaled El Emam	Privacy Analytics
Ksenia Duxfield-Karyakina	Google
Malavika Jayaram	Digital Asia Hub
Marcelo Thomson	University of Hong Kong
Nicola Jentzsch	Deutsches Institut für Wirtschaftsforschung
Sandra Wachter	Oxford Internet Institute, University of Oxford; Alan Turing Institute

### Seoul Al Policy Conference 2017–2020

2018 Conference

Artificial Intelligence Today: Governance and Accountability



From the left, Yong Lim (Seoul National University), Hyung Bae Kim (Korea Fair Trade Commission), Chang Song (Naver Corporation), Jatinder Singh (University of Cambridge), Julie Brill (Microsoft), Edward Felten (Princeton University)

In 2018, the panels discussed the theme of accountability and regulation in the era of artificial intelligence. The first session mainly focused on the regulatory issues and discussed the issue of establishing proper data governance. The second session focused on accountability and discussed the growing ethical concerns regarding the proliferation of automated decision-making. The third session focused on other technical issues such as blockchain and discussed the proper governance of the new technologies.

Haksoo Ko	Seoul National University
Hyung Bae Kim	Korea Fair Trade Commission
Soojin Nam	Hankuk University of Foreign Studies
Chang Song	Naver Corporation
Hyun Seo Yang	Kakao Corporation
Sang Yong Lee	Chungnam National University
Yong Lim	Seoul National University
Byung-Gyu Chang	Presidential Committee on the Fourth Industrial Revolution
Kyungjin Choi	Gachon University
Brent Mittelstadt	Oxford Internet Institute
David Gunning	DARPA, Explainable AI (XAI) Program
Douglas Arner	University of Hong Kong
Edward Felten	Princeton University
Jake Lucchi	Google
Jatinder Singh	University of Cambridge
Julie Brill	Corporate Vice President, Microsoft
Michèle Finck	Max Planck Institute
Su Jiang	Peking University
Woodrow Hartzog	Northeastern University

2019 Conference

Policy for the Future: Can We Trust AI?



From the left, Jake Lucchi (Google), Deirdre Mulligan (UC Berkeley), Kyung Hee Song (Ministry of Science and ICT), Jeongwon Yoon (AWS Korea)

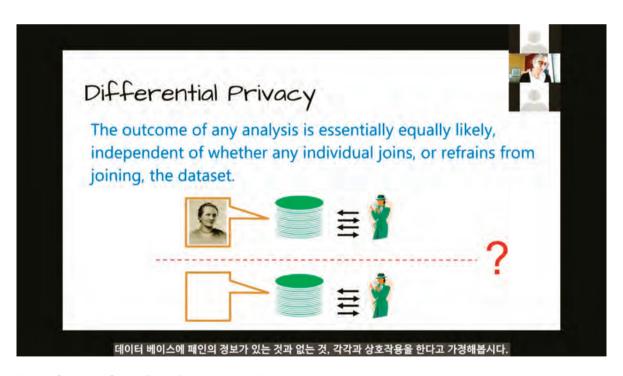


Poster

In 2019, the conference theme was 'the implementation of trust and fairness in the age of artificial intelligence'. In the first session, the panels discussed the reliability of artificial intelligence and the governance framework necessary to gain public trust. In the second session, the panels discussed what it means for the machine to be "fair" and discussed the approaches taken to implement fairness in artificial intelligence.

Haksoo Ko	Seoul National University
Hyunseop Kim	Seoul National University
Won Ki Min	Ministry of Science and ICT
Kyung Hee Song	Ministry of Science and ICT
Jeongwon Yoon	AWS Korea
Yong Lim	Seoul National University
Kyungjin Choi	Gachon University
Blaise Agüera y Arcas	Google Al
Deirdre Mulligan	UC Berkeley School of Information
Fredrik Heintz	Linköping University, Sweden & EU High-Level Expert Group on Artificial Intelligence
Gary Chan	Singapore Management University
Indr Žliobait	University of Helsinki, Finland
Jake Lucchi	Google
Malavika Jayaram	Digital Asia Hub
Norberto Andrade	Facebook
R. David Edelman	Massachusetts Institute of Technology

2020 Conference (Virtual) Al and Market Dynamics



Keynote Session by Cynthia Dwork (Harvard University)

Unlike in the previous years, the 2020 conference was held virtually due to the COVID-19 pandemic. Accordingly, SAPI expanded the number of sessions to eight and arranged the sessions on different days so that sufficient discussions can take place. Despite the change of format, the invited presenters of all sessions gave insightful presentations. For instance, Professor Cynthia Dwork delivered the keynote lecture on current state of Differential Privacy. Despite being an online event that spanned over several weeks, hundreds of scholars attended every session.

### Session

Keynote Session	Differential Privacy: What is it and Where is it? Cynthia Dwork, Harvard University
Session I	Challenges and Opportunities for Al Policymaking Jason Schultz, NYU; Al Now Institute
Session II	Algorithmic Fairness and Anti-Discrimination Law Alice Xiang, Partnership on Al
Session III	Competition in the Era of Algorithms: Evolving Law & Policy Niamh Dunne, The London School of Economics and Political Science
Session IV	Google's Perspective on Artificial Intelligence Governance Charina Chou, Google
Session V	Asimov for Lawyer: What Sci-Fi can (not) tell us about the future of AI regulation Nicolas Petit, European University Institute
Session VI	Blockchain Antitrust: Challenges and Opportunities Thibault Schrepel, Utrecht University
Session VII	When Does Gaming Justify Algorithmic Secrecy? Ignacio Cofone, McGill University

### Data, Al Governance, and COVID-19: Medium and Long-Term Perspectives for Asia

SAPI, jointly with Singapore Management University and University of Tokyo held the conference based on the "Data, Al Governance, and COVID-19: Medium and Long-Term Perspectives for Asia" report published in September 2020. Researchers from Korea, China, Japan, and Singapore discussed the initial COVID-19 response of these Asian countries in terms of data and Al governance. Researchers further discussed how COVID-19 responses will transform our societies. The research was conducted as a part of SMU-Microsoft Asian Dialogue on Al Governance. (https://caidg.smu.edu.sg/smu-microsoft-asian-dialogue-ai-governance/events)

Arisa Ema	Institute for Future Initiatives, The University of Tokyo
Haksoo Ko	Seoul National University School of Law
Hideaki Shiroyama	The University of Tokyo
Mark Findlay	Singapore Management University
Yong Lim	Seoul National University School of Law
Sangchul Park	Seoul National University
Yi Zeng	Chinese Academy of Science, BAAI



From the left, Yong Lim (Seoul National University), Mark Findlay (Singapore Management University), Yi Zeng (Chinese Academy of Science), Arisa EMA (University of Tokyo)



### **SAPI Book Publishing Event**

### Data Ownership: Who Owns My Data?

To commemorate the publication of 'Data Ownership', SAPI organized a book publishing event on April 29, 2019 with the authors. The data economy and artificial intelligence technology all stem from data. The question that is constantly being asked is, 'Who owns this data?' The event was a place for discussion to organize various thoughts on this question and seek policy answers.

Haksoo Ko	Seoul National University
Kyungsin Park	Korea University
Jun-Seok Park	Seoul National University
Dongjin Lee	Seoul National University
Sang Yong Lee	Chungnam National University
WonBok Lee	Ewha Womans University
Yong Lim	Seoul National University
Eung Jun Jeon	Youme Law
Kyungjin Choi	Gachon University
Seongwook Heo	Seoul National University
Dae-Sik Hong	Sogang University

### **SAPI Issue Paper Seminars**

### Al and Future Society

At this event held on May 16, 2019, panels discussed how artificial intelligence affects economic growth, what implications the transition to the data economy has on market competition, what changes are happening in the labor market. Panels further evaluated the efforts being made in Korea to establish Al principles that deal with issues such as fairness and discrimination.

Haksoo Ko	Seoul National University
Jihee Kim	KAIST
Dohyun Park	Seoul National University
Narae Lee	Seoul National University
Soohyung Lee	Sogang University
Yong Lim	Seoul National University
Hae Bin Jeong	Seoul National University

### **SAPI Issue Paper Seminars**

## Media Algorithm and Democracy

At the event, held on November 17th, 2019, panels discussed how algorithms or user profiling work and how they are affecting democratic decision-making process. Panels evaluated phenomena often referred to as the echo chamber effect or filter bubble and how to approach algorithmic transparency and explainability with respect to algorithms affecting public discourse. Panels further analyzed the concept of search or internet 'neutrality'.



The event was held at Naver D2 Startup Factory

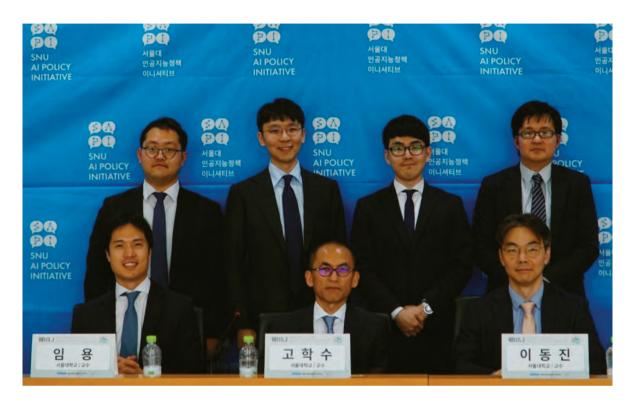
Haksoo Ko	Seoul National University
Bonhyo Koo	Seoul National University
Jong Yoon Kim	Seoul National University
Sun Goo Lee	Yonsei University
Yong Lim	Seoul National University
Yongsuk Hwang	Konkuk University

### **SAPI Issue Paper Seminars**

Data Privacy Law Amendments: Pseudonymization, Research Utilization, Data Transaction

At the event, held on May 7, 2020, panels discussed various issues relating to the recent amendments to Korea's Data Privacy Laws<sup>1</sup>. The introduction of the 'pseudonymization' concept in the laws was extensively discussed in the broader context of deidentification techniques such as differential privacy. The concept of 'research utilization' newly introduced in the laws was also heavily discussed as it defines the scope of utilization of pseudonymized personal information. Panels also discussed the market design of data transaction.

<sup>1</sup> Personal Information Protection Act, Credit Information Use and Protection Act, Act on Promotion of Information and Communications Network Utilization and Information Protection



From the upper left, clockwise, Jonggu Jeong, Bonhyo Koo, Daeyul Baek, Eunsoo Kim (Seoul National University PhD Students), Dongjin Lee, Haksoo Ko, Yong Lim (Seoul National University Professors)

Haksoo Ko	Seoul National University
Bonhyo Koo	Seoul National University
Eunsoo Kim	Seoul National University
Jong Yoon Kim	Seoul National University
Daeyul Baek	Seoul National University
Dongjin Lee	Seoul National University
Yong Lim	Seoul National University
Jonggu Jeong	Seoul National University

### **Other Academic Events**

Feb. 2020

[Co-hosted with Korean Association for Artificial Intelligence and Law] 
'Al and Data Privacy Laws Amendment' Seminar

Various expectations and concerns coexisted with the "Three Data Act" amendment on January 9, 2020. Panels discussed the expectation that an environment in which data can be better utilized to serve artificial intelligence technology versus the concern that fundamental human rights such as right to privacy may be jeopardized. Panels further discussed the necessary elements of the follow-up enforcement decrees and the appropriate actualization of the ideals of the amendments.



Haksoo Ko	Seoul National University
Sangho Bae	Personal Information Protection Commission
Byoung-il Oh	Jinbo Network
Daesun Choi	Kongju National University
Tae Uk Kang	Bae Kim & Lee
Jin Hwan Kim	Kim & Chang
Jinkyu Lee	Naver Corporation
Kyungjin Choi	Gachon University

### **Other Academic Events**

Apr. 2020

'Personal Information Governance in the Al Era' Webinar

The Personal Information Protection Act, amended in January 2020, went into effect in August after a procedure for establishing enforcement decrees. Various expectations and concerns coexisted over the amended law. In this webinar, panels discussed what changes will occur in the governance of personal information, including changes to the regulatory framework due to the amendment. The Personal Information Protection Committee, which newly launched, was given powerful investigation and law enforcement powers. Panels reviewed the law enforcement system that the amended Act envisioned and discussed implications from other existing "committee" experiences and implications from overseas cases.



From the left, Sinook Kang (Shin & Kim), Kyo Wha Chung (Microsoft), Yong Lim (Seoul National University), Haksoo Ko (Seoul National University), Hwan Kyung Ko (Lee & Ko), Kyungjin Choi (Gachon University), Borami Kim (Dike Law Office), Dae-Sik Hong (Sogang University)

Sinook Kang	Shin & Kim
Haksoo Ko	Seoul National University
Hwan Kyung Ko	Lee & Ko
Borami Kim	Dike Law Office
Yong Lim	Seoul National University
Kyo Wha Chung	Microsoft
Kyungjin Choi	Gachon University
Dae-Sik Hong	Sogang University

## DAIG (Data & Al Governance) Magazine Publication

In December 2020, SAPI launched the DAIG Magazine, a magazine specializing in data and artificial intelligence legal policy. The first issue was planned with the theme of "Data Governance in the Digital Era". DAIG was envisioned to serve as a platform for discussion regarding issues of data and artificial intelligence. DAIG wishes to bridge the gap between the academia and the industry.

The following articles were published in the DAIG's first issue. [SAPI: The original articles are in Korean and the English translation of the titles below are provided by SAPI and not confirmed by the authors.]

### <Articles> Data Governance in the Digital Era

- Data Valuation Byoung-Pil Kim
- Data Collection: Methods and the Current State Jong Yoon Kim, Haksoo Ko, Byoung-Pil Kim
- E-commerce and Personal Information Doil Son
- Use of Medical Data: Issues After the Data Privacy Amendments Ho Sang Yoon
- Collection and Sharing of Financial Data: Changes Under the New Credit Information Act – Joon Young Kim, Bomi Chen, Jee Young Park
- Major Issues and Improvement Directions of Data Legislation for Al Industry Development – Hwan Kyoung Ko, Il Shin Lee, Sanghoo Lee

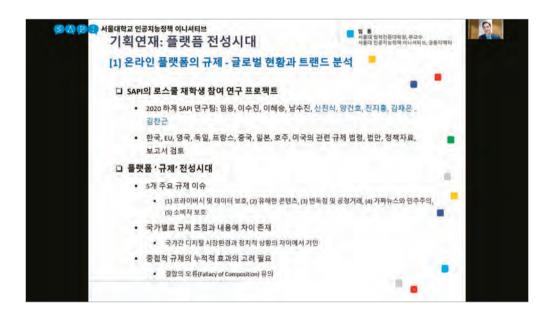
### <DAIG PRIMER> Fundamentals of Data and Al Governance

- Practical Algorithms - Bonhyo Koo, Byoung-Pil Kim

### <DAIG Series> Platform Proliferation

- Regulating Online Platforms: Global Trends – Yong Lim, Soojin Lee, Haesung Lee et al.

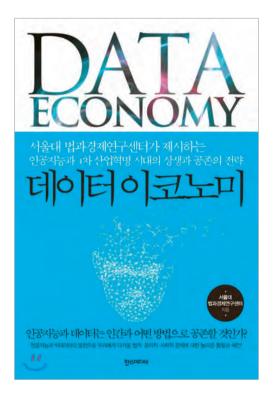
SAPI also held a webinar to commemorate the publication of DAIG on December 22, 2020. Authors presented their papers and held panel discussions in the first half of the event. In the second half, students who participated in the 2020 Summer Research Assistantship Program presented their research.



Professor Yong Lim presented 'Regulating Online Platforms: Global Trends'



Poster



"Data Economy, Hans Media, 2017

### **Data Economy**

'Data Economy' is a summary of legal, economic, and social issues related to the paradigm shift in the data-driven economy. Various issues such as artificial intelligence, autonomous vehicles, fintech, personal information, internet certificate system, data deidentification, big data and competition laws were reviewed through the lens of data economy.



"Data Ownership." PAKYOUNGSA, 2019

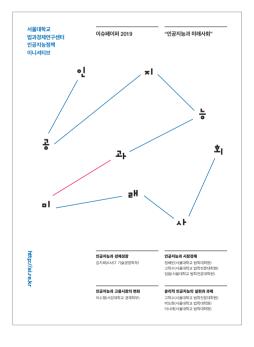
### **Data Ownership**

'Data ownership' starts with the recognition that it is difficult to endow ownership of data in a strict legal sense. The book analyzes certain important characteristics of data, and discusses newly emerging legal issues. The book contains the authors' thoughts on what kind of legal rights can be established for data.

### **Issue Paper Publication**

Since 2019, SAPI has been publishing issue papers on major research topics regarding artificial intelligence and data.<sup>2</sup> [SAPI: The original articles are in Korean and the English translation of titles below are provided by SAPI and not confirmed by the authors.]

2 SAPI Issue Papers can be found at www.sapi.co.kr



### 1st Issue Papers

Artificial Intelligence and Future Society

- 1. Al and Economic Growth
  - Jihee Kim
- 2. Al and Market Economy
  - Haksoo Ko, Yong Lim, Hae Bin Jeong
- 3. Al and Change of Labor Market
  - Soohyung Lee
- 4. Challenges in Ethical Al
  - Haksoo Ko, Dohyun Park, Narae Lee



### 2nd Issue Papers

### Media Algorithm and Democracy

- 1. Is Democracy Under Siege?
  - Haksoo Ko, Bonhyo Koo, Jong Yoon Kim
- 2. Algorithm and Political Polarization
  - Yongsuk Hwang
- 3. Algorithmic Transparency and Explainability
  - Sun Goo Lee
- 4. Misconceptions of Platform Neutrality
  - Yong Lim
- 5. Legal Issues Regarding Data Transaction
  - Dongjin Lee



### **3rd Issue Papers**

Data Privacy Law Amendments: Pseudonymization, Research Utilization, Data Transaction

- 1. The Concept of Pseudonymized Data under the New PIPA
  - Haksoo Ko, Daeyul Baek, Bonhyo Koo, Jonggu Jeong, Eunsoo Kim
- 2. 'Research Purpose Utilization' of Pseudonymized Data
  - Haksoo Ko, Bonhyo Koo, Jonggu Jeong
- 3. Promise and Limitation of Differential Privacy
  - Haksoo Ko, Bonhyo Koo
- 4. Data Transaction Guidelines
  - Dongjin Lee

Current Research Activities: Projects

1	Financial Artificial Intelligence Policy & Ethics Guidelines
2	Utilization of Medical Data and Privacy
3	Artificial Intelligence in Court
4	Legal Prediction Al
5	Algorithmic Accountability and Governance
6	Explainable Al
7	Artificial Intelligence Ethics Principle
8	Algorithms and Competition Law
9	De-identification and Pseudonymization of Personal Information
10	Legal DB and Al Utilization

SAPI is conducting several research projects. The following is a list

of projects SAPI is currently conducting.

# Current Research Activities: Projects

### 1 Financial Artificial Intelligence Policy & Ethics Guidelines

We investigate use cases of artificial intelligence in the financial sector, discover cases where laws and other regulations related to the financial industry hinder the use of artificial intelligence, and propose regulatory improvement measures. We also review specific policy frameworks to encourage broader adoption of artificial intelligence and propose ethical guidelines for use of AI in financial sector by surveying foreign AI ethics principles.

### 2 Utilization of Medical Data and Privacy

Medicine is an area where artificial intelligence can make a huge difference. Improving data usability is the biggest hurdle for the industry. Privacy consideration based on the special nature of medical data is crucial in balancing data usability and medical privacy. We review issues related to use of medical data and propose a balanced approach.

### 3 Artificial Intelligence in Court

Legal documents including court rulings are mostly in text and thus can be utilized using natural language processing. However, many obstacles exist in implementing AI in judicial proceeding. We survey foreign precedents and recommend policy direction to Korean Courts.

### 4 Legal Prediction Al

We review whether implementation of a legal prediction algorithm in damages claims is feasible. We review and confirm the accuracy of the prediction algorithm.

### 5 Algorithmic Accountability and Governance

We review how the opacity of artificial intelligence leads to controversy over fairness and accountability. In this study we pursue an integrated review of technical, medical, ethical, and legal perspectives.

### 6 Explainable Al

While algorithmic decision-making is proliferating, the difficulty to explain Al's decision hinders trust in the technology. Through this research we survey legal and technical discussions around algorithmic explainability and interpretability.

### 7 Artificial Intelligence Ethics Principle

Decisions by Al may not be fair and may exacerbate social bias. Algorithmic fairness has become a central issue in Al research, both normatively and technically. We survey discussions on algorithmic fairness and propose guidelines grounded in domestic situation.

### 8 Algorithms and Competition Law

here are various perspectives on how algorithmic decision affects market competition. We review and organize various views on Al from the competition law perspective.

### 9 De-identification and Pseudonymization of Personal Information

With the amendment of Korean data privacy laws, pseudonymization of personal information is a hot research topic involving various technical and procedural challenges. We review practical pseudonymization techniques and propose policy design.

### 10 Legal DB and Al Utilization

We are building pilot legal database to confirm possibility of implementing Al prediction models in judicial proceedings.

# **Other Activities**

### **Course Development**

SAPI developed and started teaching 'Data and Al Law' and 'Artificial Intelligence and Law' at Seoul National School of Law as regular subjects. 'Data and Al Law' covers topics such as overview of artificial intelligence technology; overview of legal and regulatory issues related to artificial intelligence; overview of liability issues related to robotics and self-driving automobiles; tort liability of artificial intelligence; artificial intelligence and market competition; artificial intelligence and social and economic discrimination; issues of algorithmic transparency and accountability; explainable and interpretable artificial intelligence. 'Artificial Intelligence and Law' introduces machine learning technology and trains students how to code basic machine learning models such as recidivism prediction model and handwriting detection model. Based on technological understanding, the lecture covers topics such as privacy preserving data analysis, controlling robotic harms, transparency and fairness issues of artificial intelligence models, and the use of artificial intelligence in judicial proceedings. Relevant course will also be available at 2021 Seoul National University Al Combined Major Program.

### **SAPI** Fellowship

SAPI supports talented young legal practitioner interested in legal and policy issues related to artificial intelligence. SAPI Fellow works closely with faculty members and play a central role in SAPI's research projects.

Summer·Winter Research Assistantship Talented law students participate in SAPI's paid research assistantship program during summer and winter break.



Other Activities 40

### **SNU AI Policy Initiative**

SAPI is open to collaboration. If you are interested in research collaboration, event organization, or otherwise wish to get involved with SAPI please do not hesitate to contact us.

### www.sapi.co.kr woojungb@snu.ac.kr

### Co-Directors

Haksoo Ko	Professor
Yong Lim	Associate Professor

### **DAIG Steering Committee**

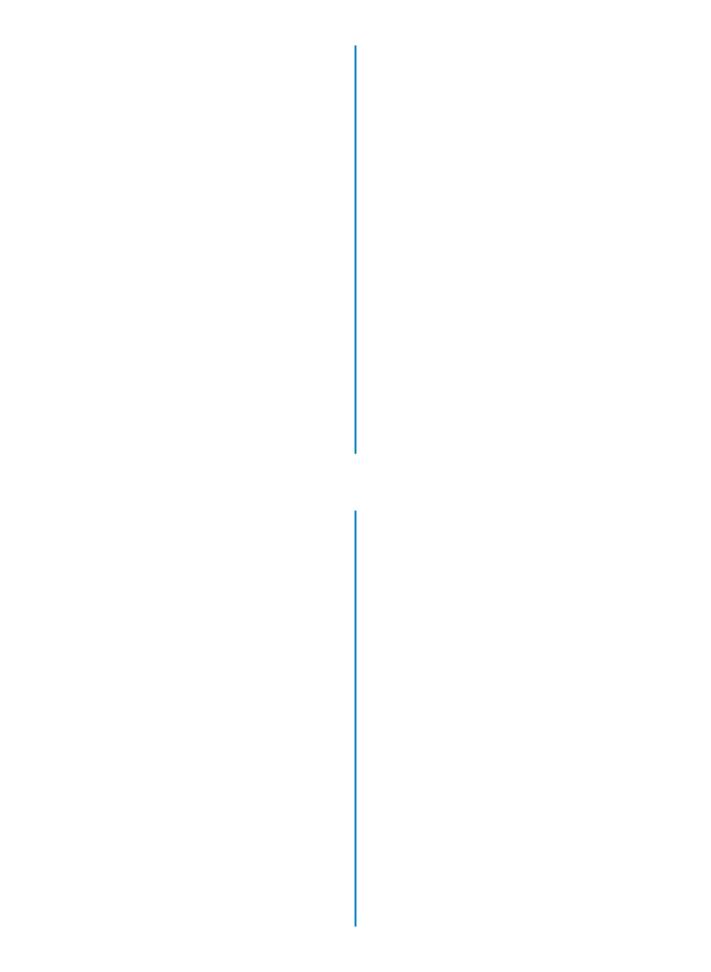
Haksoo Ko	Seoul National University
Yong Lim	Seoul National University
Sangchul Park	Seoul National University
Byoung-Pil Kim	KAIST
Sinook Kang	Shin & Kim
Tae Uk Kang	Bae Kim & Lee
Hwan Kyung Ko	Lee & Ko
Eui Seok Kim	Kim & Chang
Jin Hwan Kim	Kim & Chang
Doil Son	Yulchon
Youjin Lee	Kakao Corporation
Jinkyu Lee	Naver Corporation
Eung Jun Jeon	Youme Law
Kyo Wha Chung	Netflix
Jae-Hoon Chung	Google
Kyungjin Choi	Gachon University

### Researcher

Sanghyun Cho	Attorney
Jonggu Jeong	Attorney
Haesung Lee	Ph.D. Student

### Staff

Woojung Byun	Coordinator/Manager



Seoul National University Al Policy Initiative Report

서울대학교 인공지능정책 이니셔티브 활동보고서

