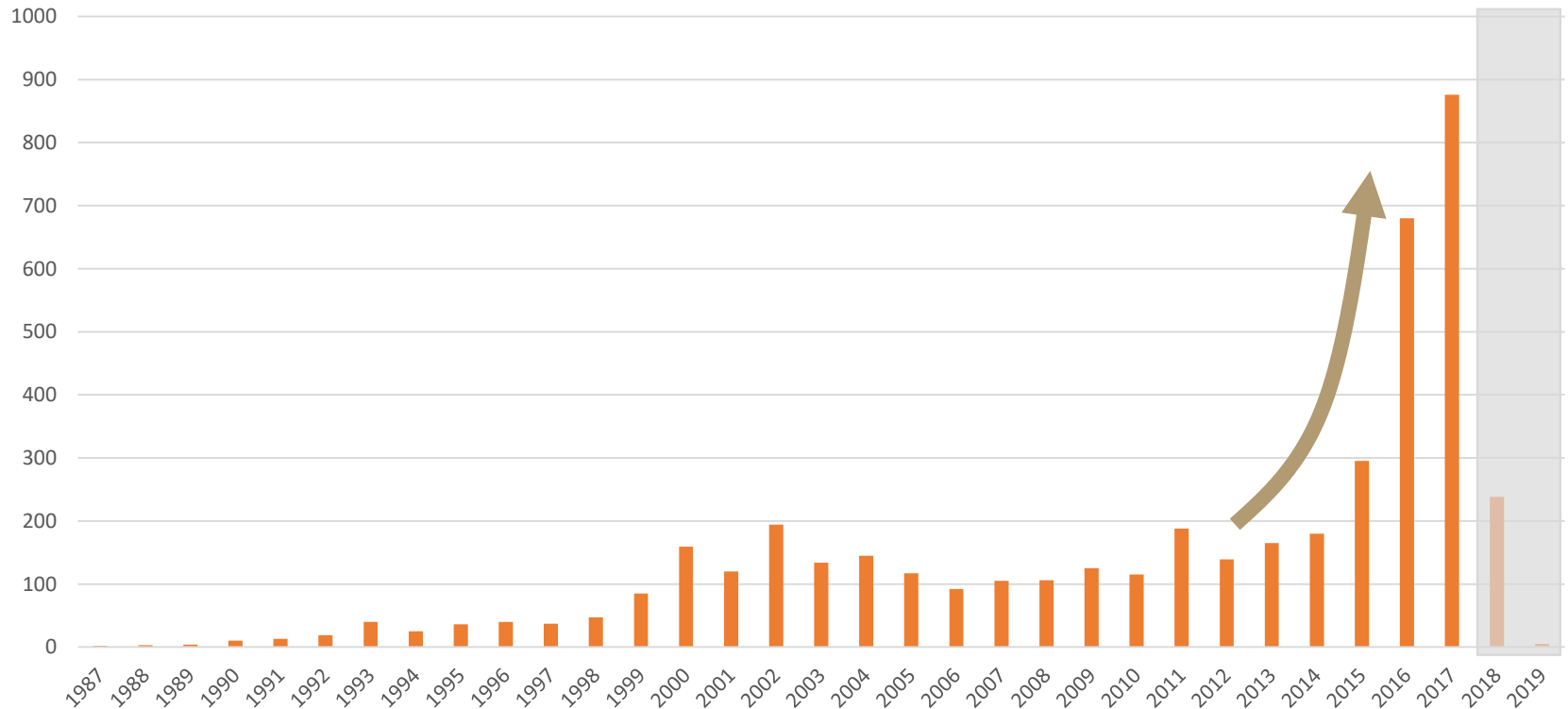# AI & Patenting in Korea

AnK Intellectual Property

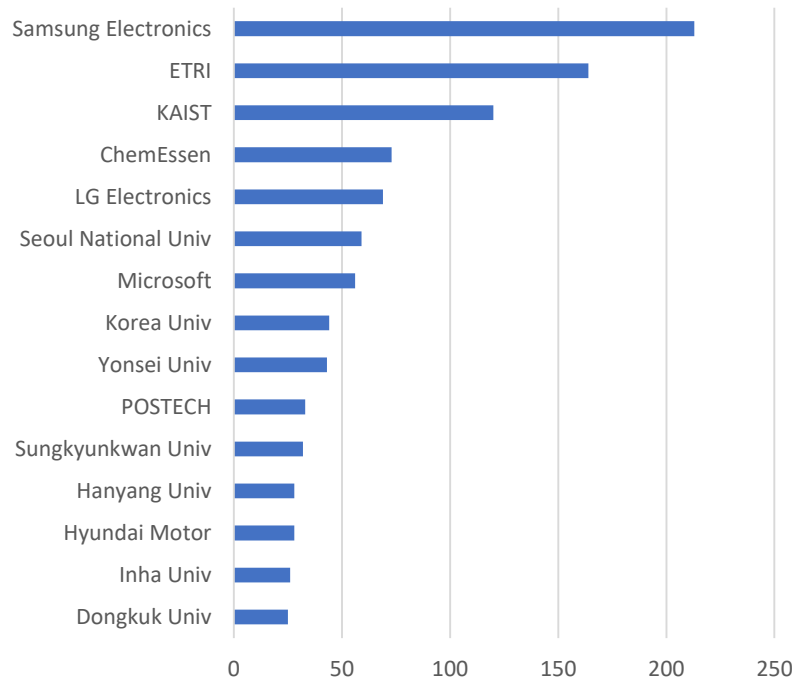**Jesung Ahn**

2019. 04.

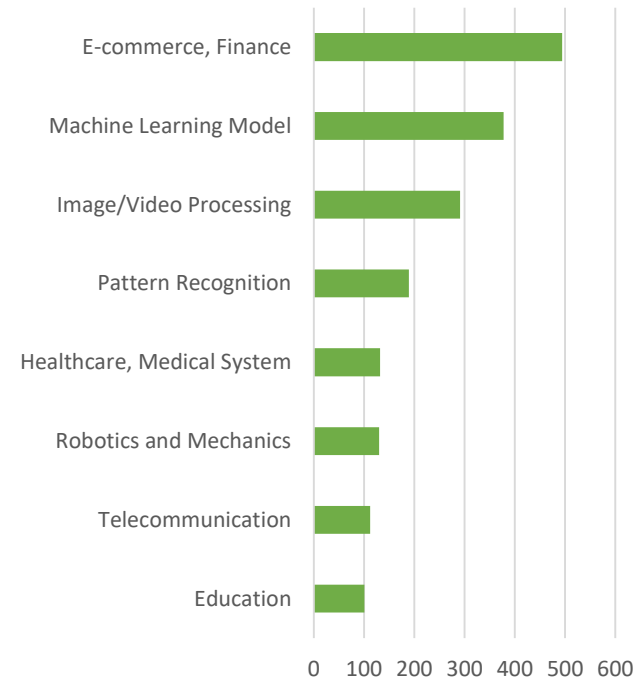# AI Patent Filings in Korea

> ➢ **Recently, the number of AI-related patent filings surges in Korea**
>
> ➢ **About 40% of total number of patent filings was made in 2016-2019**

AI Patent Filings in Korea

TOP 15 Applicants

Applicant	Filings
Samsung Electronics	~213
ETRI	~163
KAIST	~120
ChemEssen	~72
LG Electronics	~68
Seoul National Univ	~57
Microsoft	~55
Korea Univ	~43
Yonsei Univ	~42
POSTECH	~32
Sungkyunkwan Univ	~31
Hanyang Univ	~28
Hyundai Motor	~28
Inha Univ	~25
Dongkuk Univ	~24

Technical Areas

Area	Filings
E-commerce, Finance	~490
Machine Learning Model	~370
Image/Video Processing	~290
Pattern Recognition	~175
Healthcare, Medical System	~130
Robotics and Mechanics	~130
Telecommunication	~110
Education	~100

> ➢ **Samsung, LG and Microsoft are top corporate applicants while research organizations and universities also have a large number of filings**

> ➢ **AI-related patent filings are made significantly in the areas of e-commerce, voice/image processing, healthcare, etc.**
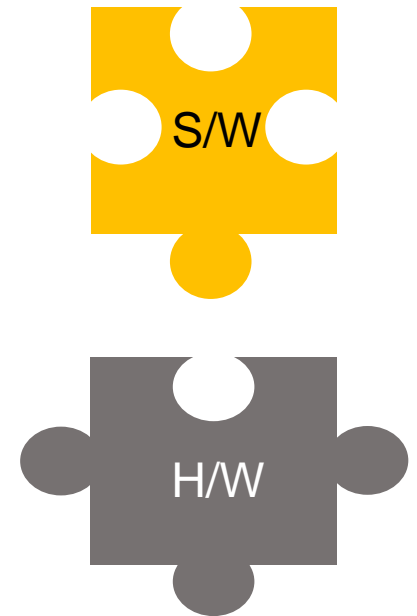
Patenting of AI-related Inventions in Korea

- Invention is defined as "advanced creation of technical idea using law of nature" (**Patent Law, Article 2**).

- Software cooperating with hardware is considered as using law of nature such as physical phenomena occurring in hardware (**Supreme Court decision 2001Hu3149, 2007Hu265, 2007Hu494**).

- **KIPO Examination Guidelines for Computer-Related Invention**
    - ➢ Computer-related invention may be patentably eligible if "information processing by software is implemented in detail by using hardware."

➢ **AI-related inventions are considered as computer-related invention**

INTELLECTUAL PROPERTY
에이엔케이 특허법률사무소

Patenting of AI-related Inventions in Korea

- **Examination Guidelines for Computer-Related Invention** is updated on March 18, 2019

  - ➢ **AI related invention** may be considered as "advanced creation of technical idea using law of nature" if claims describe "concrete means or methods based on software cooperating with hardware for implementing unique information operation or processing for achieving specific object."

S/W

H/W

➢ **AI-related inventions are allowable if the claims describe concrete means or methods based on software cooperating with hardware**
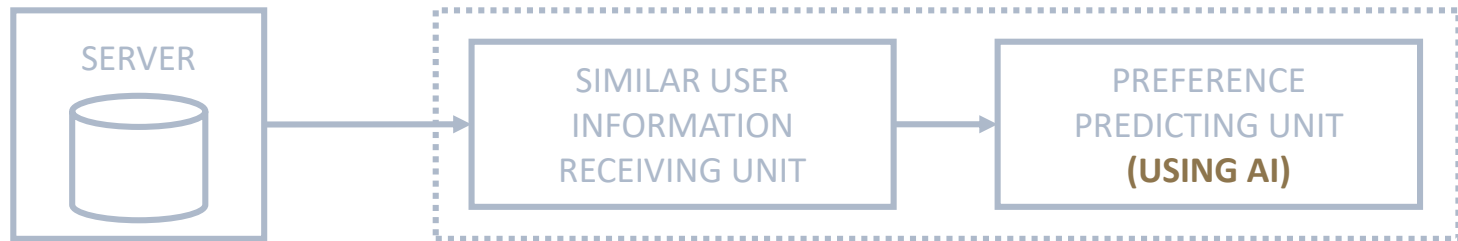
Patenting of AI-related Inventions in Korea

- AI invention example in **Examination Guidelines for Computer-Related Invention**

Claim. *Apparatus for predicting a user's preference on contents, comprising:*

similar user information receiving unit for receiving a list of similar users to the user from a server that store contents usage information on users using similar contents;

preference predicting unit for predicting the user's preference on the specific contents by learning features of contents preferred by the similar users using a machine learning algorithm which inputs the list of similar users and its contents usage information.

> **EXAPLE: Hardware using AI algorithm for implementing unique information processing**

Problems with Patenting AI-related Inventions

- **"Patent Eligibility" under Examination Guidelines**

  - ➤ Invention is patentably eligible if it has "**repeatability and reproducibility**."

  - ➤ AI may produce different outputs depending on how long it is trained or how much training data is used.

  - ➤ However, if it is ensured that AI algorithm is trained to produce consistent output, the AI invention may be patentably eligible.

➤ **AI invention may be allowable if it has repeatability and reproducibility**

Problems with Patenting AI-related Inventions

- **"Inventive Step" under Examination Guidelines for Computer-Related Invention**

  - ➤ Solutions by computerizing or software-programming of well-kwon technology may not be inventive. For example, "advancement of decision making by using AI or fuzzy algorithm" may not be inventive.

  - ➤ When prior art or well-kwon technology is implemented using AI, it may be inventive or not

➤ **AI invention is inventive if the claims define unique information processing by AI and if the invention provides better effects than prior art**

INTELLECTUAL PROPERTY
에이엔케이 특허법률사무소

Korean Patent Law assumes a Human Inventor

- Patent Law assumes that an entity of invention is a **human being**

- **Patent Law, Article 33** (entity who can obtain a patent right)
  - ➢ "**Person or his/her successor** owns a right to obtain a patent according to what is provided under the Law"

➢ **Patent Law assumes that an entity of invention is a human being**

INTELLECTUAL PROPERTY
에이엔케이 특허법률사무소

Conclusion

- "AI invention" is treated in the same way as computer-related invention under Korean patent practice.

- Under the KIPO Examination Guidelines, AI invention is patentably eligible if the claims define means or methods based on software cooperating with hardware for implementing unique information processing.

- "Inventive AI" may not be entitled to obtain a patent right under current Korean Patent Law.

INTELLECTUAL PROPERTY
에이엔케이 특허법률사무소

Thank You

AnK Intellectual Property

Okshin Tower, 14F, 117 Dogok-ro, Gangnam-gu, Seoul 06253, Korea
Tel. 02-6952-9091
Fax. 02-6952-9096
E-mail. ankip@ankip.com
www.ankip.com