How to Add AI Technology in Your Work

In this presentation, we'll discuss how to integrate AI into your existing IT system. Specifically, we'll explore AI technology offered by WIPS, a leading IP service provider in Korea.

Kim Ki Tae

WIPS CO., LTD.

Introduction WIPS

Seoul Sangam, KOREA

IP Total service provider

No.1 market share in Korea

About WIPS

WIPS is the leading IP total service provider in Korea, with a strong track record of providing comprehensive IP solutions.

- **Company : WIPS Co., Ltd**
- **Starting from : August, 1999**
- **Headquarter : Seoul , Korea**

Introduction WIPS

Established	Employees	Enterprise Customer	IP Date	Awards
1999	500+	5000+	200 M+	30+

Introduction WIPS

Digital Content Award by the Ministry of Information and Communication

DB Quality Grand Prize by the Ministry of Information and Communication

Certified Highest Quality DB by Korea Database Agency

Certified ISO/IEC 27001:2005 Information Security Management System for KIPO

Designated as “World Class Product” Service by Ministry of Knowledge Economy

Authorized Prior Art Search Institute by KIPO

- **Top Market Share in Korea**
- **WIPO ASPI Access to Specialized Patent Information**

Introduction WIPS

KIPO
KOREAN INTELLECTUAL PROPERTY OFFICE

WIPS

WIPS partnering with KIPO

- **Authorized Prior Art Search Institute By KIPO**

  Patent Prior Art Search: 10,000 per year

  98% of Search Reports cited by KIPO Patent Examiners

- **Authorized PCT Prior Art Search Institute By KIPO**

  PCT Prior Art Search: 3,000 per year

- **Authorized Trademark & Design Art Search Institute By KIPO**

  Trademark Prior Art Search: 20,000 per year

  Design Prior Art Search: 13,000 per year

“ How is AI being leveraged in IP work ? ”

Patent Database Today !

CONTENTS >

- sLLM (smaller Large Language Model)
- WIPS Global (patent search & analysis)

WIPS Today !

WIPS sLLM

sLLM: A Specialized AI Engine

sLLM stands for Smaller Large Language Model.
This type of AI is designed for specific areas and provides greater control, security, and accuracy compared to larger, general-purpose AI models.

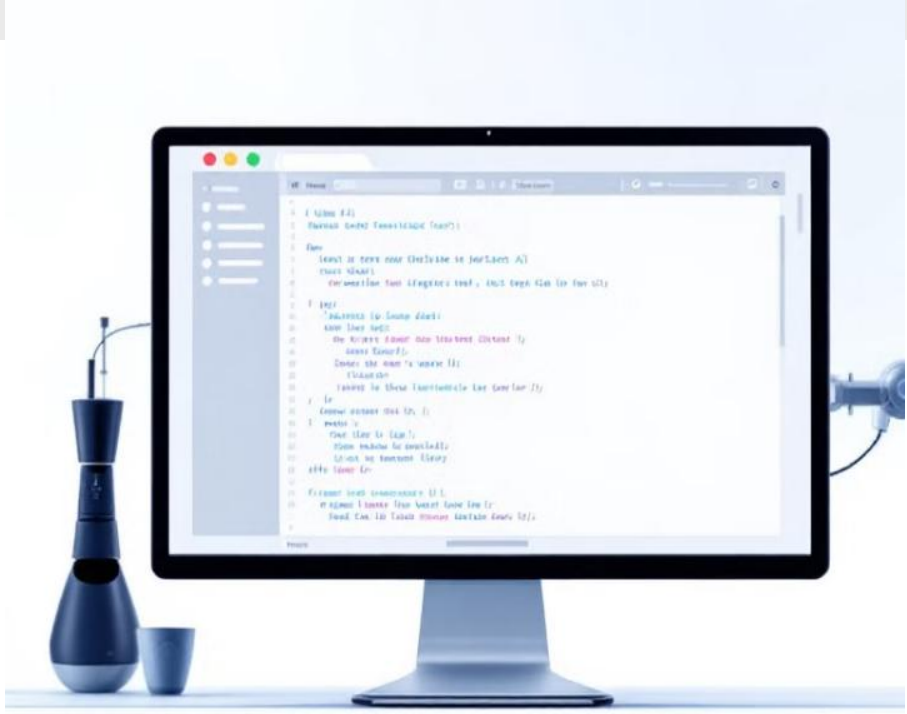
sLLM

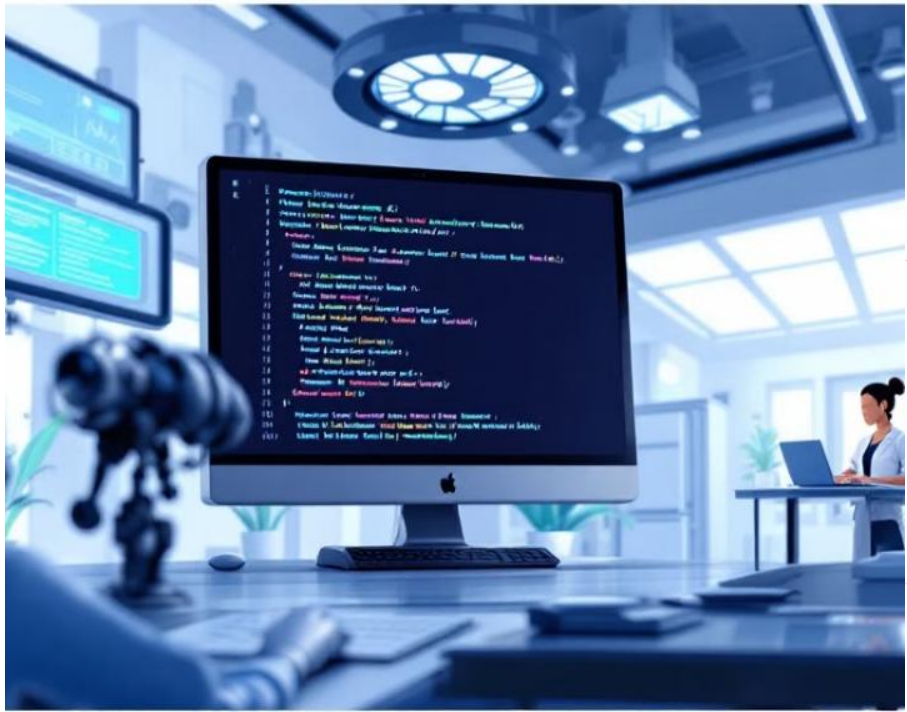
(smaller Large Language Model)

VS

AGI

(Artificial General Intelligence, LLM)





Advantage of sLLM

1. Create specialized AI engine
2. Advantage of Security
3. Accuracy
4. Scalability

WIPS sLLM

1. Specialized AI engine trained by patent big data
2. Security : working with in house system
3. Accuracy : specialized about patent document
4. Scalability : can be scaled up or down as needed

WIPS AI Technology >

WIPS AI Technology >

Simple & Easy & Accurate

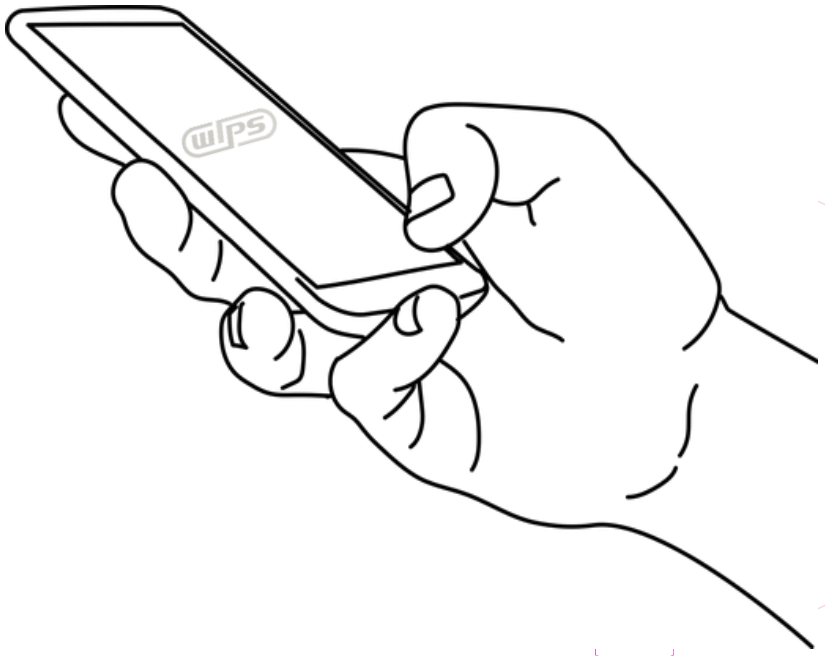
Biggest AI advantage >

Break Huddle

❖ WIPS AI Technology – AI search

Biggest AI advantage >

Break Huddle



❖ WIPS AI Technology – AI search

((폴리에틸렌* 폴리에칠렌* 폴리에설린* 폴리에치렌* 폴리에스틸렌* 팔리에틸렌* 팔리에칠렌* 팔리에설린* 팔리에썰린* 팔리에치렌* 포리에틸렌* 포리에칠렌* 포리에설린* 포리에썰린* 포리에치렌*포리에스틸렌* 폴리올레핀* 포리올레핀* 폴리에텐* ((폴리* 팔리* 포리* 수지* 고분자* 공중합* 중합체* 레진* 코폴리* 공폴리* resin* poly* copoly*) near (에틸렌* 에칠렌* 에설린* 에썰린* 에치렌* 에스틸렌* 올레핀* 에텐* ethene* olefin* ethylen*)) polyethylen* polyolefin* polyethene).ti,ab,cla. (C08F-010* C08L-023/04*).ipc.) AND (헥센* 핵센* 핵샌* 1-헥센* 1-헤키센* 해키센* 해키샌* 헤키센* 1헤키센* 1헥센* 1-hexene* hexene*).ti,ab,cla. AND (파이프* 빠이뿌* 파이쁘* 도관* 수도관* 직관* 하수관* 합성수지관* 상수도관* 강관* 배관* 관체* 수로관* 파이핑* 송수관* 하수관* 폐수관* pipe*).dsc. AND ((BOREALIS* 보레알리스* 아토피나* atofina* (FINA adj RESEARCH) ((토탈 TOTAL) adj (페트로케미칼스* PETROCHEMICALS*)) 토탈페트로케미컬* 이네오스 ineos 바젤* basell 바스프* BASF* (CIBA adj HOLDING) (Ciba adj Geigy) 미쓰이케이컬* ((미쓰이 mitsui) adj (가가쿠* chemicals*)) 필립스* 셰브론필립스* philips* 다우글로벌테크놀로지스* 다우케미컬* 다우케미칼* ((다우 dow) adj (글로벌 global) adj (테크놀로지* technologies*)) ((다우 dow) adj (케미칼* 케미컬* chemical*)) 닛폰포리에치렌* (japan adj polyethylene*) ((노바 nova) adj (케미칼* chem*)) sabic* DSM* 디에스엠* 로얄디에스엠* 사빅* 사우디베이직* ((사우디 Saudi) adj (베이직* basic*))).ap. (ボレアリス* ボリアリス* アトフイナ* (トータル adj ペトロケミカルズ*) イネオス バーゼル* ビーエーエスエフ* (チバ adj ホールディング) 三井化学* フィリップス* (ダウ adj グローバル adj テクノロジーズ) (ダウ adj ケミカル) 日本ポリエチレン* (ノバ adj ケミカルズ) ディーエスエム* サビック* (サウディ adj ベーシック*)).apj. (510310277 511114678 511233496 500224380 504231966 500161100 508014132 510312628 509011363 508349470 503461629 504469606 501330477 505455130 513076604 513043455 506126071 396023948 508020155 000005887 502303175 502141050 502130582 303060664 505382548 503200752 503220392 508171804 502132128).ac. (KR001182 EN004244 EN012782 EN001256 EN008881 EN015340 EN016149 KR000759 EN008312 EN001114 EN003633 EN012951 KR001505 EN003565 EN001508 KR000033 EN000012 KR000171 EN000207 KR000065 KR000179 EN000048 EN000417 EN064329 EN005622 EN009156 EN004500 EN000547 KR000228 EN003732 KR001371 KR001372).wap.)

❖ WIPS AI Technology – AI search

Semantic search

Count frequency keyword

Sentence search

Paragraph search

Phrase search

Text mining

Not enough
Technology (Deep learning)

Not enough
Big & Optimized Data

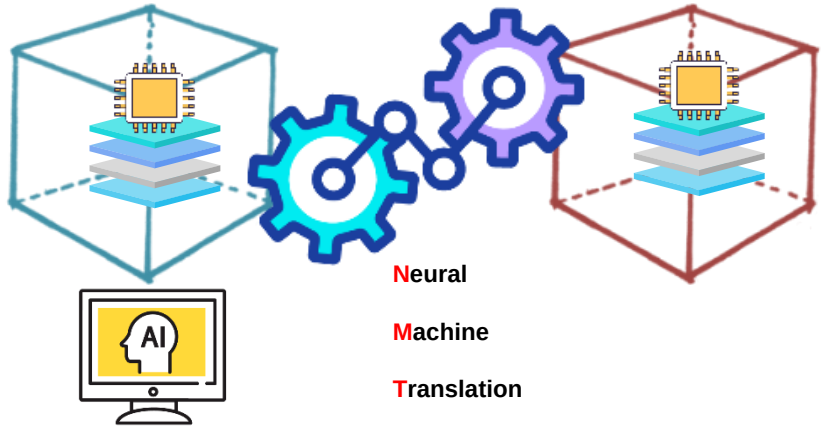
❖ WIPS AI Technology – AI search

Technology (Deep learning)

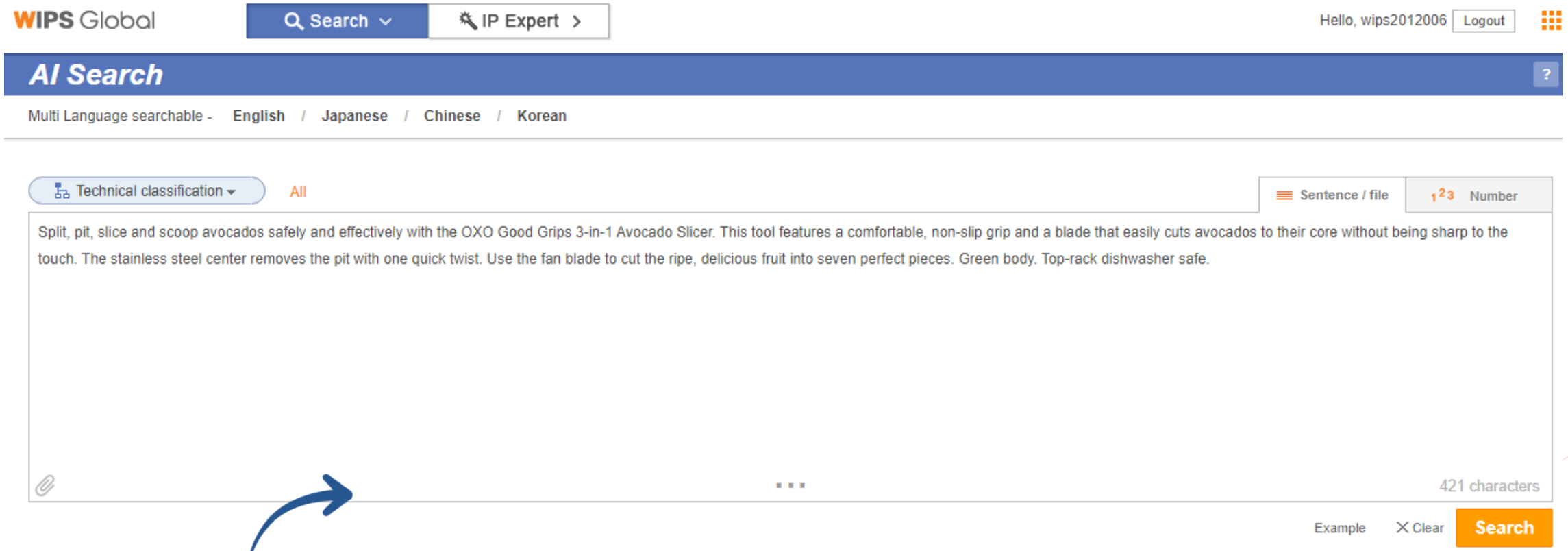
: AI tech is growing up fast

Big & Optimized Data

: Big data + NMT + Optimized Condition

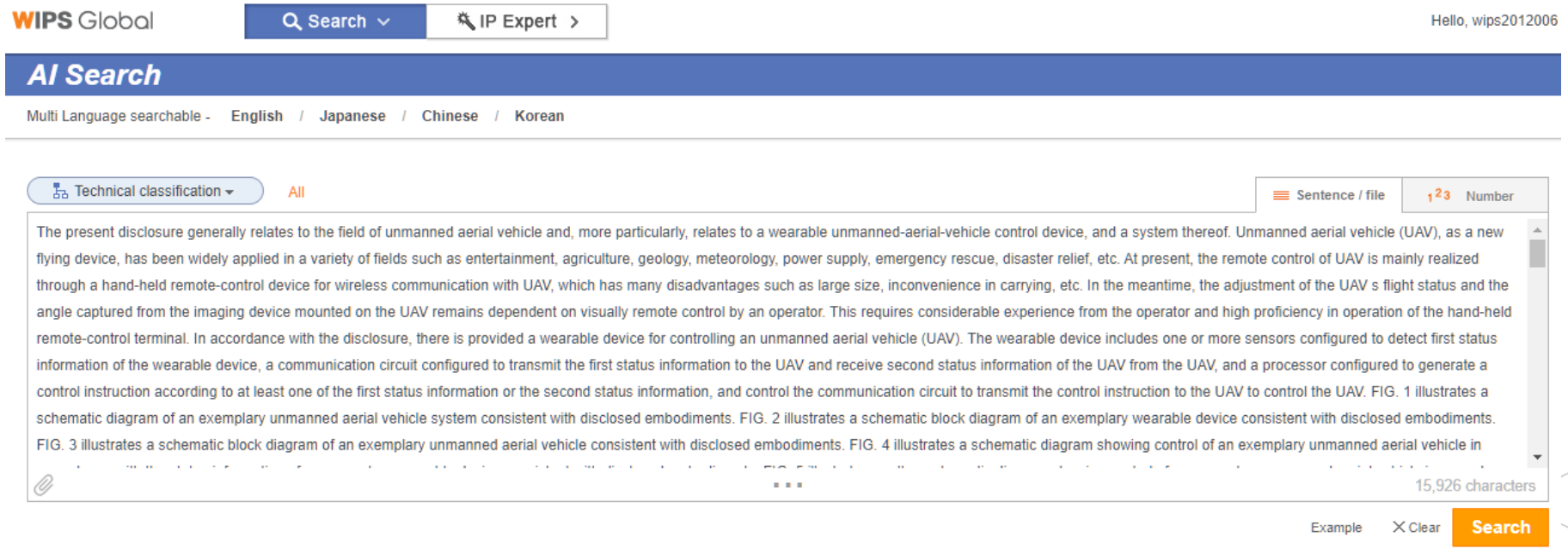


❖ WIPS AI Technology – AI search



Human Text, Language
: Invention note, Journal, Article, Paper, Product description etc.

❖ WIPS AI Technology – AI search



! AI Search

- AI Search suggests documents with high similarity by entering sentence based on artificial neural networks.
- AI search is available for Sentence / File / Number.
- Analyzes the language of the entered sentence and searches for similar documents by automatic translating. (Automatic translating may take some time.)

- **AI search - Multi language support. EN, JP, CN and KR**
- **Human Text, Language search : Invention note, Journal, Article, Paper, Product description etc.**

❖ WIPS AI Technology – AI search

Search

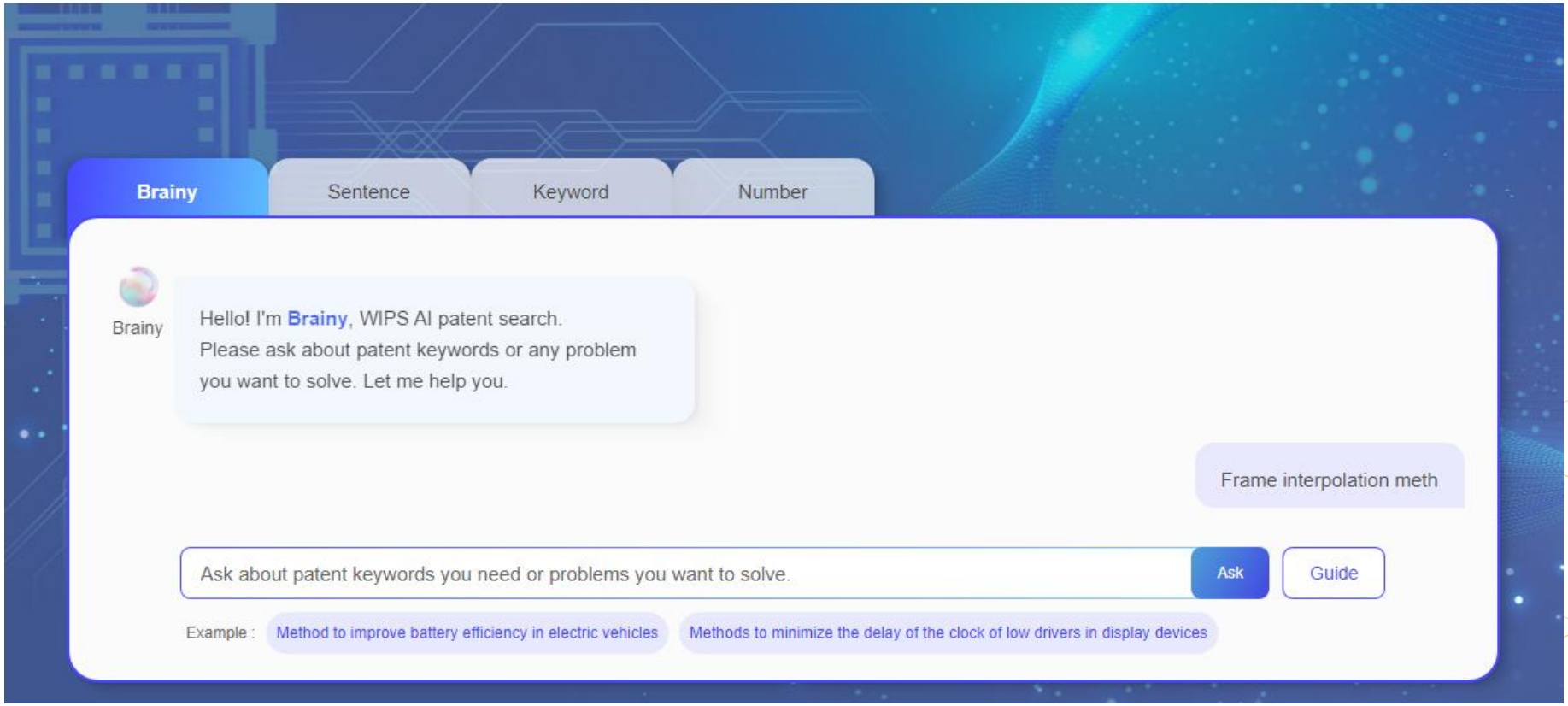
- Field
- Number
- Step
- AI
- Drawing Text

Theme

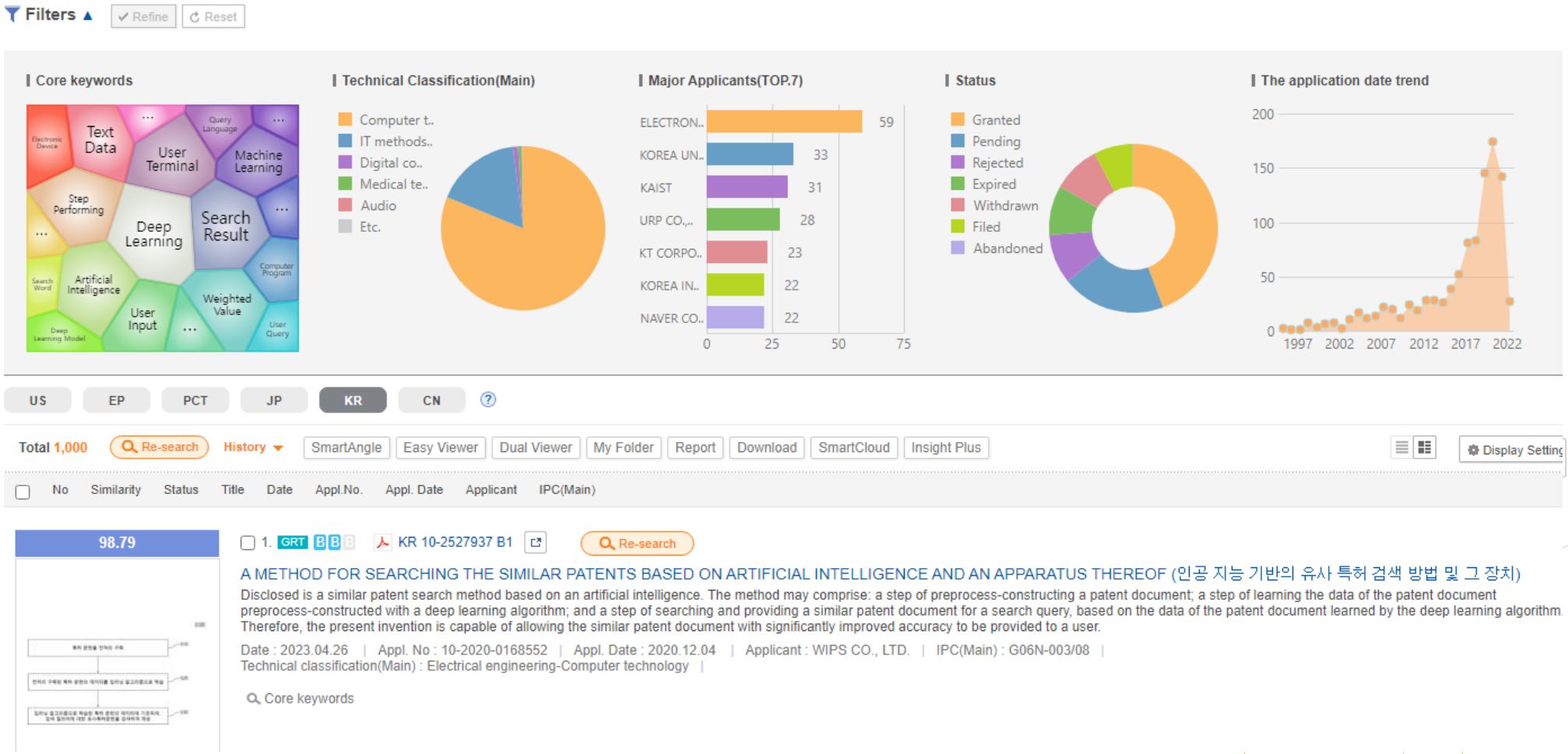
- Trial & Appeal
- Litigation
- Family
- Legal

IP Expert

- Insight Plus
- Invalidation Advisor
- FTO Generic
- Chem Sight



❖ WIPS AI Technology – AI search



- **Search result – 1,000 search result list with relevant score**

❖ WIPS AI Technology – AI search

WIPS Global Similar Patent

Provide 30 patents, which are similar to US 12162470 B2 | More 'Similar Patents'

Total 30 | My folder

KR | JP | US | EP | CN | PCT

1. US 11891045 B2 — 78.70
Power transmission device for vehicle

2. US 7758467 B2 — 78.69
Hybrid vehicle control apparatus

3. US 11173915 B2 — 78.68
Hybrid vehicle drive apparatus

4. US 12024020 B2 — 78.66
Power transmission device

5. US 2024-0343105 A1 — 78.65
HYBRID VEHICLE CONTROL APPARATUS

6. US 2022-0314962 A1 — 78.64
VEHICLE CONTROL APPARATUS

7. US 2024-0300476 A1 — 78.63
DRIVE CONTROL APPARATUS FOR ELECTRIC VEHICLE

8. US 2024-0101103 A1 — 78.62
HYBRID VEHICLE

9. US 11951973 B2 — 78.60
Technical field of method of controlling electric vehicle and driv...

10. US 11865912 B2 — 78.59
Transfer for four wheel drive vehicle

GRT US 11891045 B2

Power transmission device for vehicle

Abstract/Claim | Description | Drawings ON | Highlighter

Core Keywords

Power Transmission Device | Internal Combustion Engine | Travel Motor | Generator Configured | Travel Motor Configured | Electric Power Generated | Drive Drive Wheel | Drive Wheel Configured | Transmit Power | Drive Wheel | Clutch Mechanism Configured | Interrupt Power Transmission | Power Transmission Path

Bibliographic Application Date : 2018.09.10 | IPC(Main) : B60W-020/20 | 1st Standardized Applicant : NISSAN MOTOR CO LTD

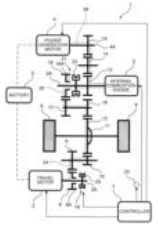
Abstract

A power transmission device of the present invention is a power transmission device for a vehicle, including: a generator configured to be driven by power of an internal combustion engine; a travel motor configured to be driven by electric power generated by the generator and to drive a drive wheels; and the drive wheels configured to be driven by the power of the internal combustion engine or power of the travel motor. The power transmission device includes: a first power transmission path configured to transmit power between the travel motor and the drive wheels; and a first clutch mechanism configured to allow or interrupt power transmission through the first power transmission path.

Claims

Claim 1 (Exemplary Claim)

1. A power transmission device for a vehicle, the vehicle including:
a generator configured to be driven by power of an internal combustion engine;
a travel motor configured to be driven by electric power generated by the generator and to drive a drive wheels; and
the drive wheels configured to be driven by the power of the internal combustion engine or power of the travel motor,
wherein the power transmission device comprises:
a first power transmission path configured to transmit power between the travel motor and the drive wheels;
a first dog clutch mechanism configured to allow or interrupt power transmission through the first power transmission path;
a second power transmission path configured to mechanically transmit the power of the internal combustion engine to the drive wheels;



Rep. Drawing

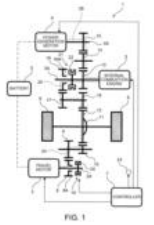
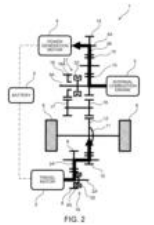


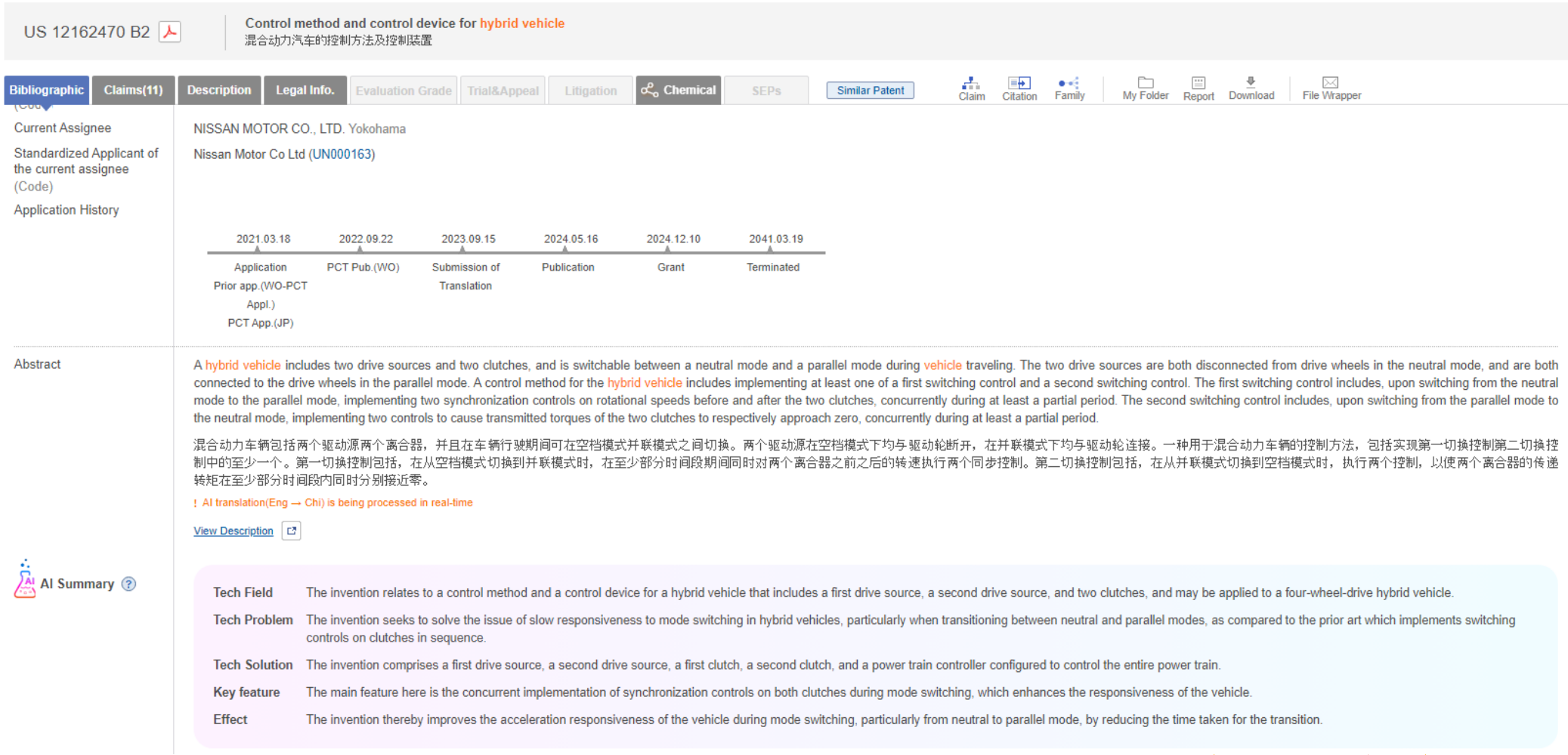
Fig. 1



+6 Fig. 2

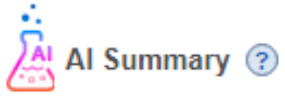
- **Find similar patent with core keyword**

❖ WIPS AI Technology – AI D-structure summary



- **AI deep structure summary**

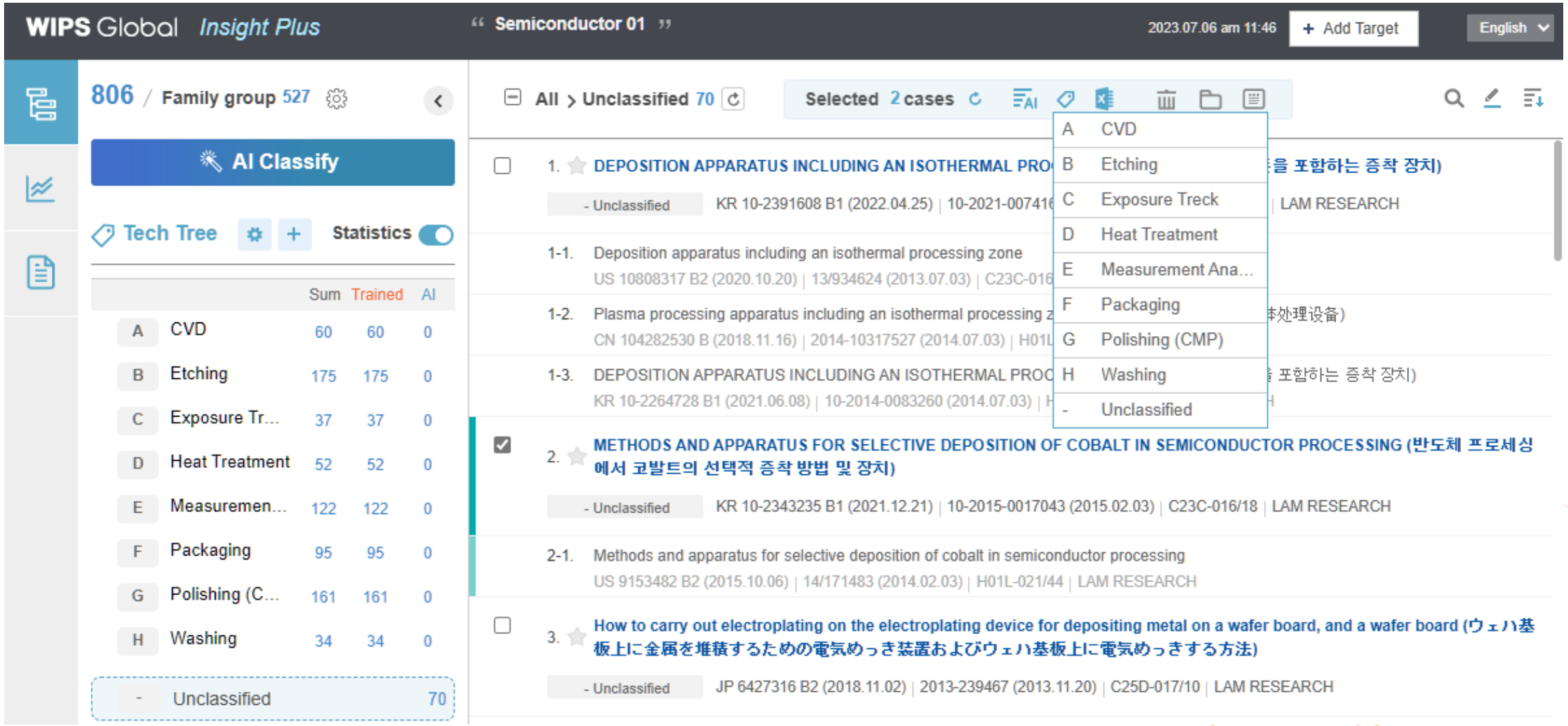
❖ WIPS AI Technology – AI D-structure summary



Tech Field	The invention relates to a document search method and system for retrieving documents from a large database based on an input search query.
Tech Problem	The invention seeks to solve the issue of retrieving not only documents that match a search keyword but also those that are semantically relevant, addressing the limitations of conventional search methods that often fail to provide the desired information to users.
Tech Solution	The invention comprises a document search method that includes steps for retrieving document data, interpreting semantic content, specifying relevant locations within documents, and displaying the results.
Key feature	The main feature here is the ability to interpret the semantic content of documents and specify highly relevant locations within them based on the input search query.
Effect	The invention thereby improves the user experience by allowing users to quickly grasp relevant information without needing to sift through entire documents, enhancing the efficiency of document retrieval.

- **Easy and deep structure summary about patent document**

❖ WIPS AI Technology – InsightPlus

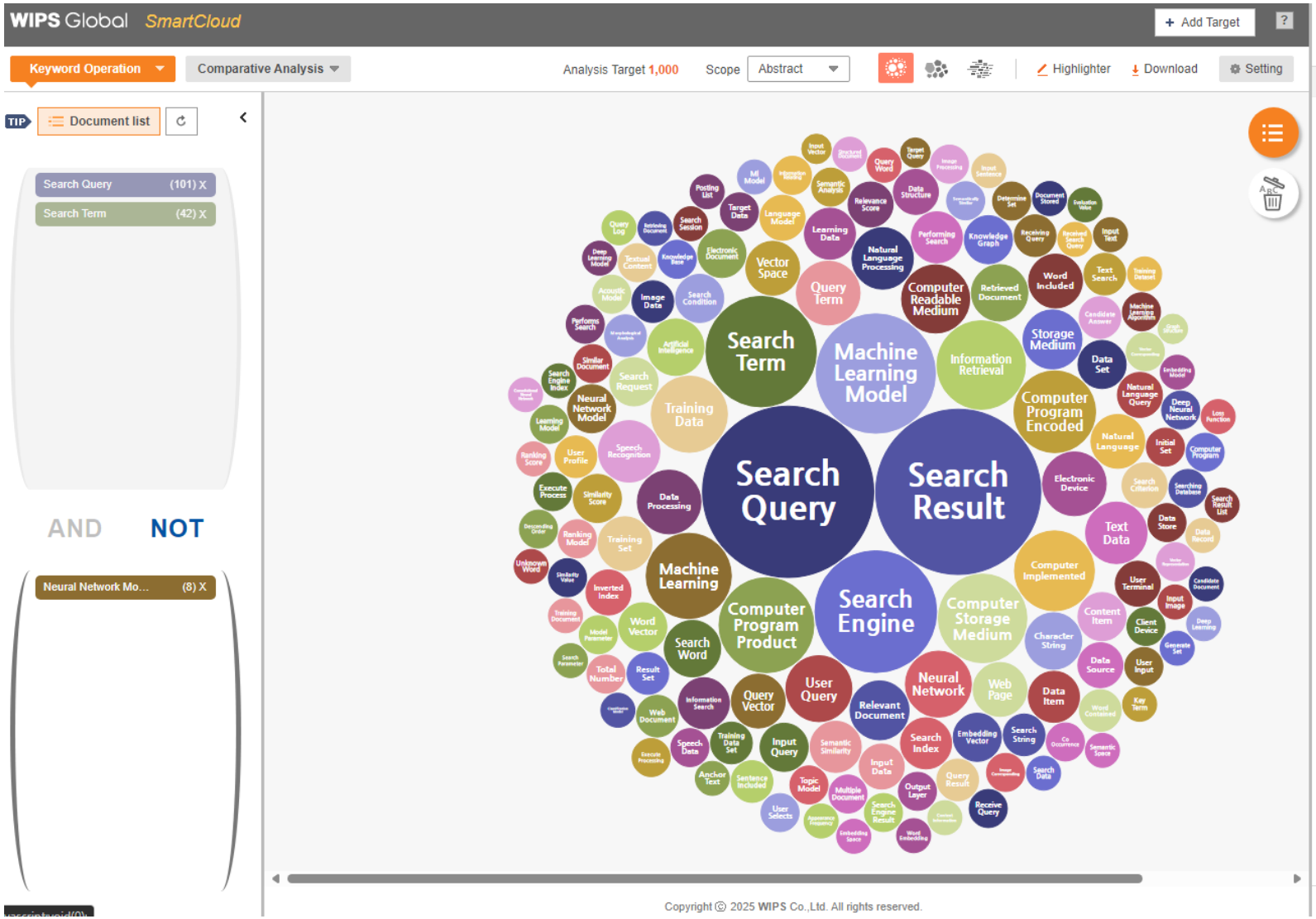


- **AI classification**

❖ WIPS AI Technology – InsightPlus

- **Easy analysis and Create report**

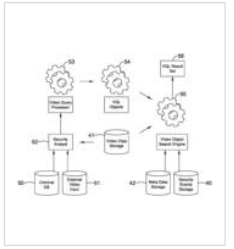
❖ WIPS AI Technology – Extract accurate keyword



Select 133 (Search Query OR Search Term) NOT (Neural Network Model)

SmartAngle | Easy Viewer | Dual Viewer | My Folder | Report | Download

1. GRT US 12182198 B2 Systems and methods for identifying events within video content using intelligent search query



A video management system (VMS) may search for one or more objects and/or events in one or more video streams, and may receive time-stamped metadata that may identify one or more objects and/or events occurring in the corresponding video stream as well as an identifier that uniquely identifies the corresponding video stream. A user may enter a query into a video query engine, wherein the video query engine includes one or more cognitive models. The VMS may apply the search query to the time-stamped metadata via the video query engine to search for one or more objects and/or events in the one or more video streams that match the search query, and returning a search result to the user.

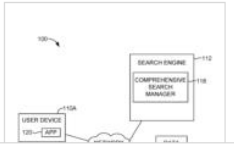
Date : 2024.12.31 | Applicant : HONEYWELL INTERNATIONAL INC. | IPC(Main) : G06V-020/40

2. PEN US 2024-0428086 A1 INCORPORATING APPROXIMATE NEAREST NEIGHBOR SEARCH AS IMPLICIT EDGE IN KNOWLEDGE GRAPH

Systems and methods are directed to incorporating approximate nearest neighbor search as implicit edges in a knowledge graph. The system generates an approximate nearest neighbor (ANN) index that indexes entities by their embeddings. The system models a knowledge graph by including the embeddings as nodes in the knowledge graph. Based on a search query, the system performs a search of the knowledge graph to obtain results, whereby performing the search includes traversing one or more implicit edges from a node of an embedding in the knowledge graph to one or more related nodes in semantic vector space based on the ANN index. The results are then presented on the device of the user.

Date : 2024.12.26 | Applicant : MICROSOFT TECHNOLOGY LICENSING, LLC | IPC(Main) : G06N-005/02

3. PEN US 2024-0419710 A1 COMPREHENSIVE SEARCHES USING SEMANTIC SEARCHES AND LEXICAL SEARCHES



Methods, computer systems, computer-storage media, and graphical user interfaces are provided for providing comprehensive search results. In embodiments a content item having text is obtained. Thereafter, via a text embedding model, semantic search data in association with the content item is generated. Lexical search data in association with the content item is also generated. The semantic search data and the lexical search data are

1 Move / 7

- **High accuracy keyword extraction and its operation**

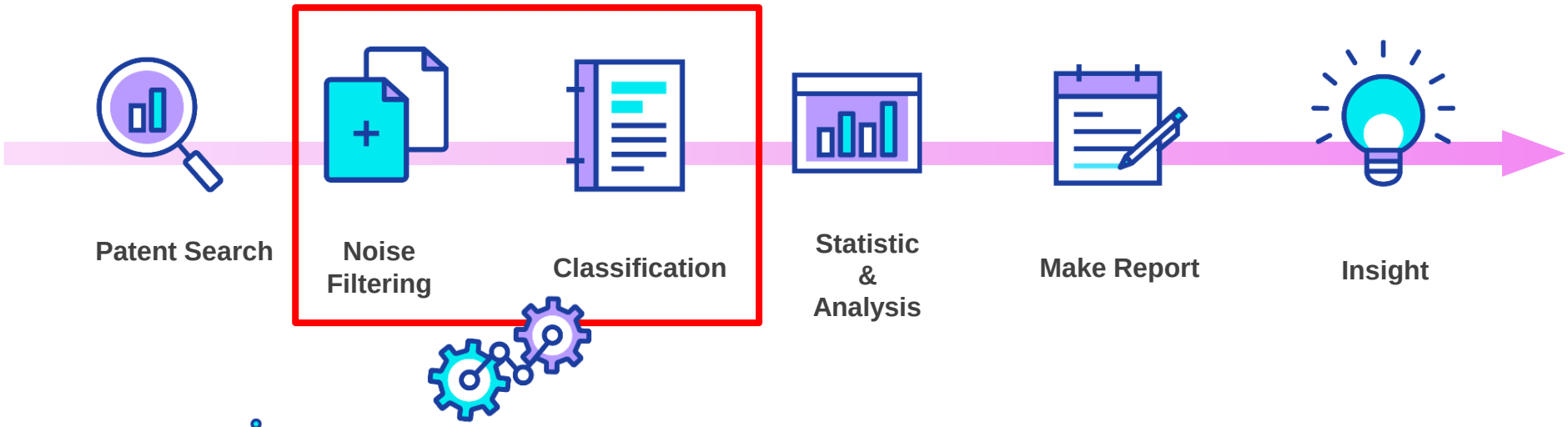
WIPS AI Technology

AI tech Classification

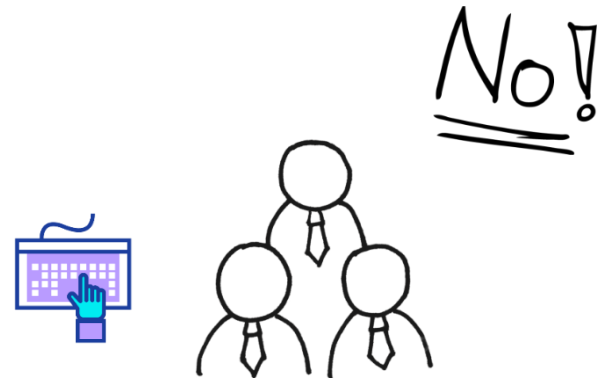
with

Prism

AI tech Classification - Prism



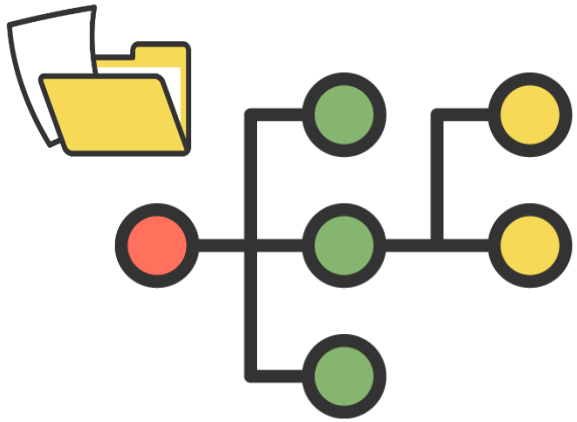
70 ~ 80% of whole working time



By human resource

AI tech Classification - Prism

The answer is AI classifier.

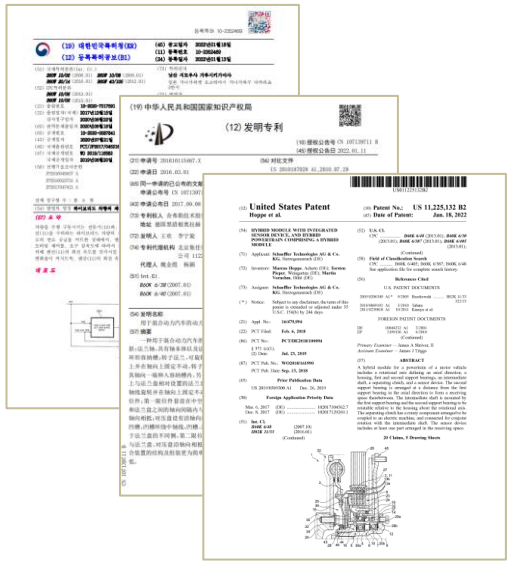


To Save

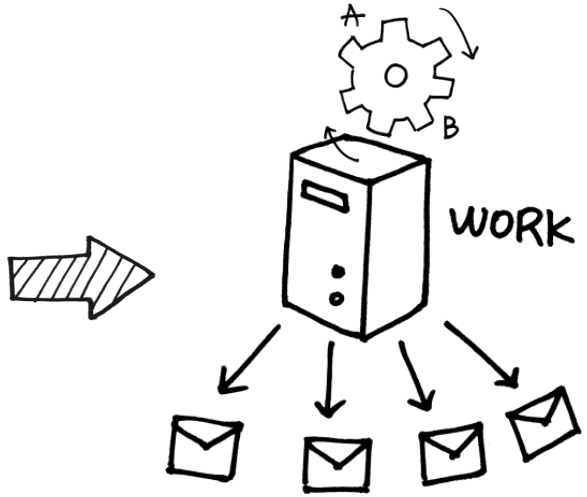
- Much Time
- Much Effort
- Much Cost

AI tech Classification - Prism

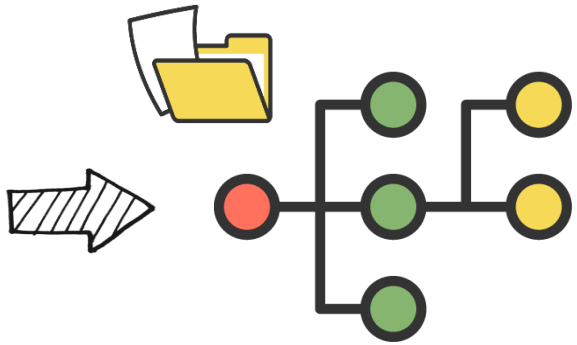
What we want ?



Unclassified
Patents Documents



AI classifier

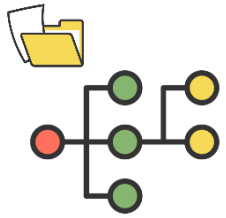


Automatic
AI classification

AI tech Classification - Prism

However, There is no standard.
Every single user have various purpose and categorization they want.

Ex > *Robotic vacuum cleaner*



Depth 0	Depth 1
Robotic vacuum cleaner	suction part
	sensing unit
	camera
	drive part
	battery
	control

Classification Tree 1 (structure)

Depth 0	Depth 1
Robotic vacuum cleaner	complex method
	brush method
	vacuum suction method
	□
	□
	□

Classification Tree 2 (method)

Depth 0	Depth 1
Robotic vacuum cleaner	Obstacle recognition technology
	Self-Location Recognition Technology
	Floor recognition technology
	Cleaning condition detection technology
	□
	□

Classification Tree 3 (technology)

AI tech Classification - Prism

Solution ??

The answer is
Optimized, Custom trained AI classifier

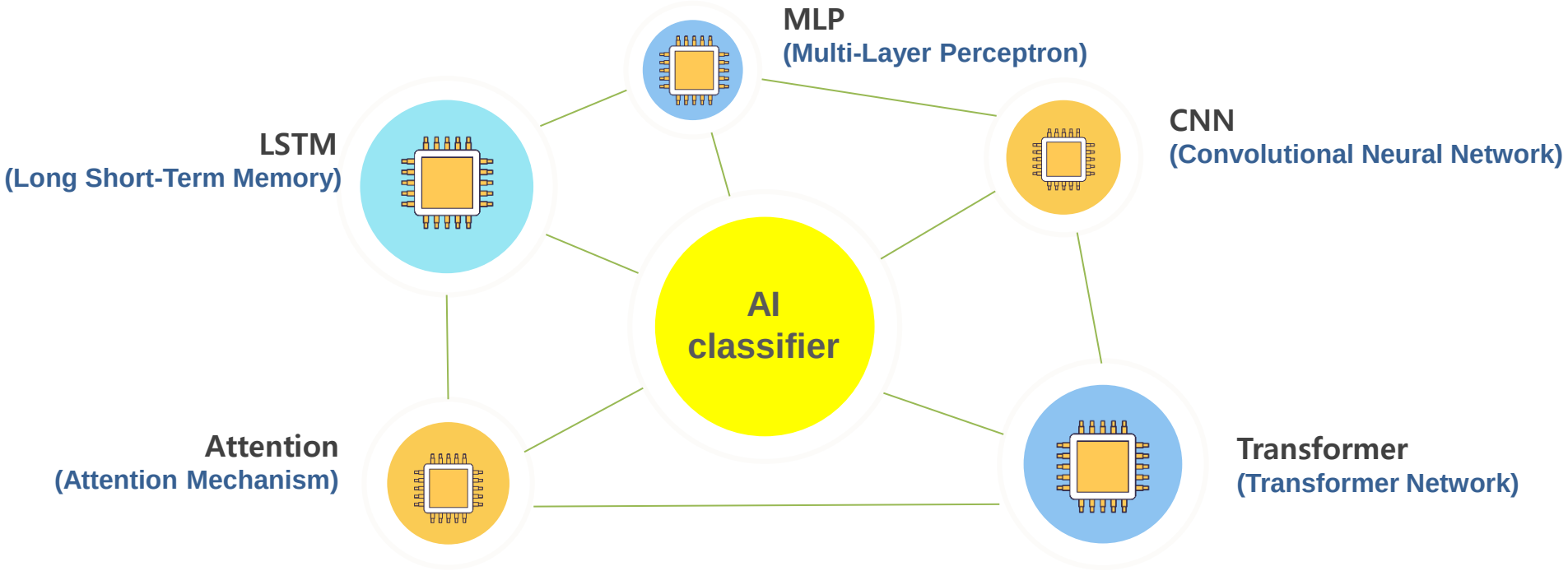
There is no Standard classifier

Want to have **my own classifier**
which is **trained by my data**

AI tech Classification - Prism

How we use AI ?

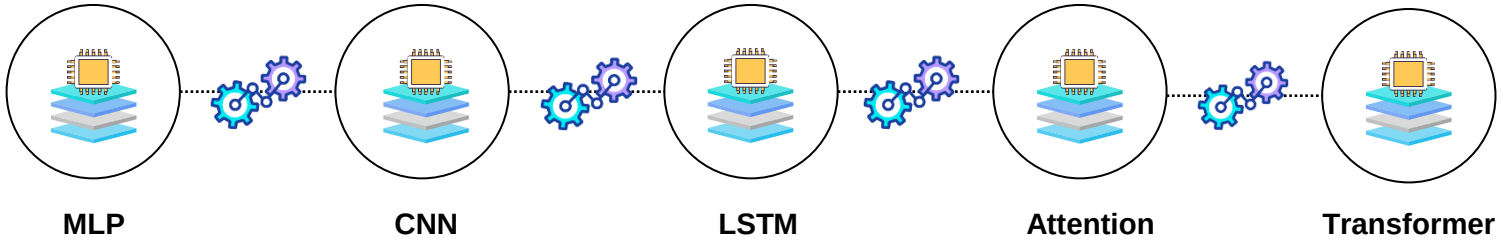
We use 5 different AI to make best performance.



AI tech Classification - Prism

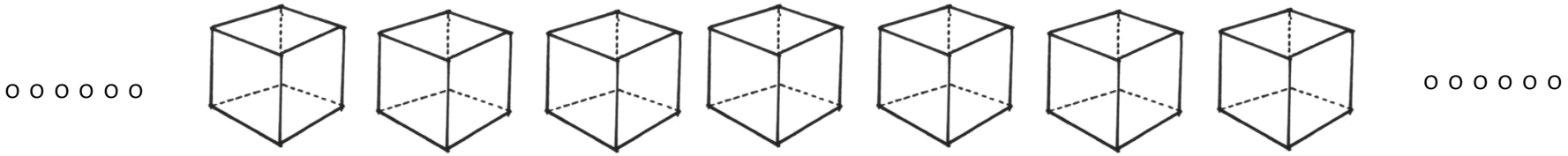
How It works ?

5 different AI makes



Create 70 INDUCER

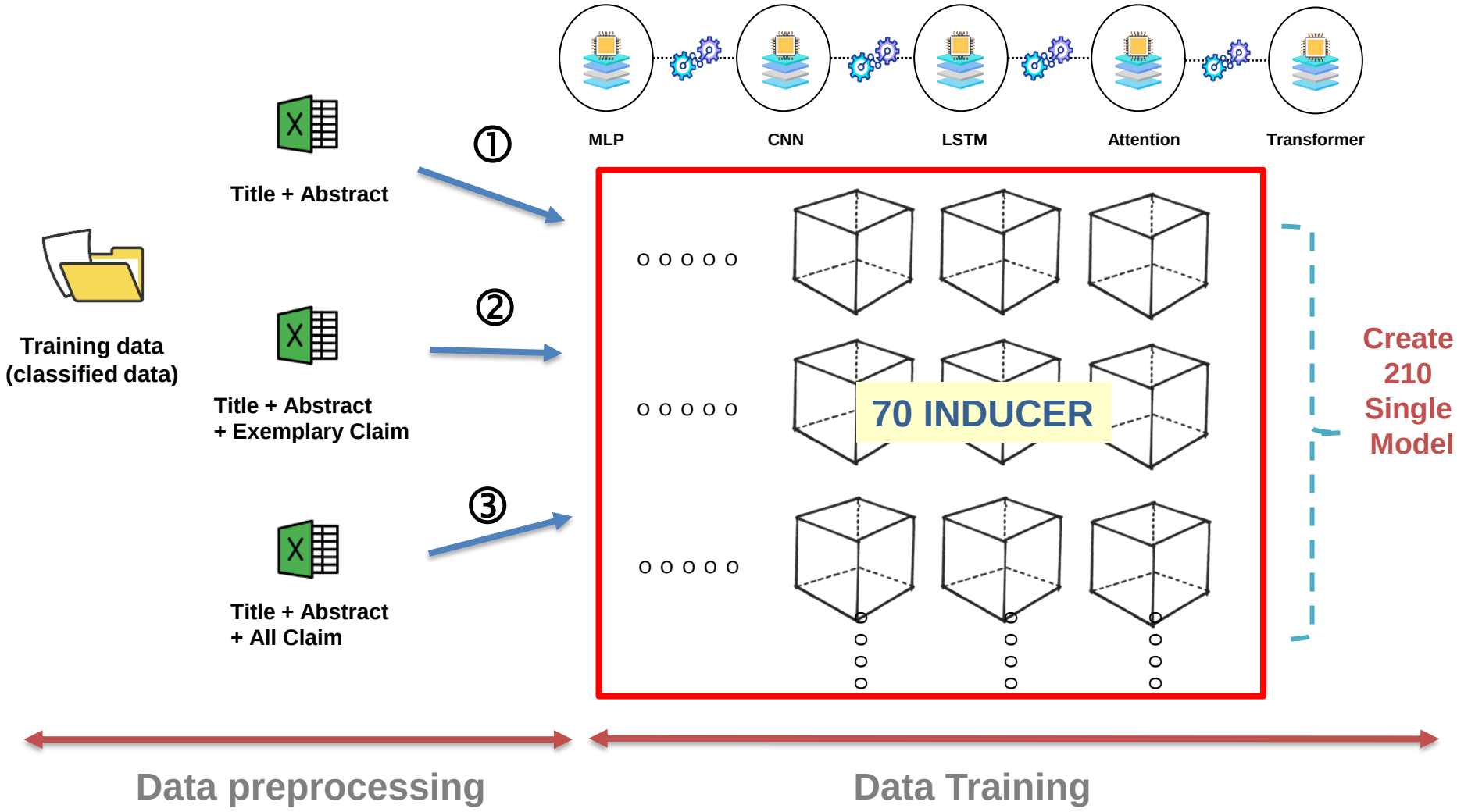
* INDUCER is not trained model



AI tech Classification - Prism

How It works – Making Model

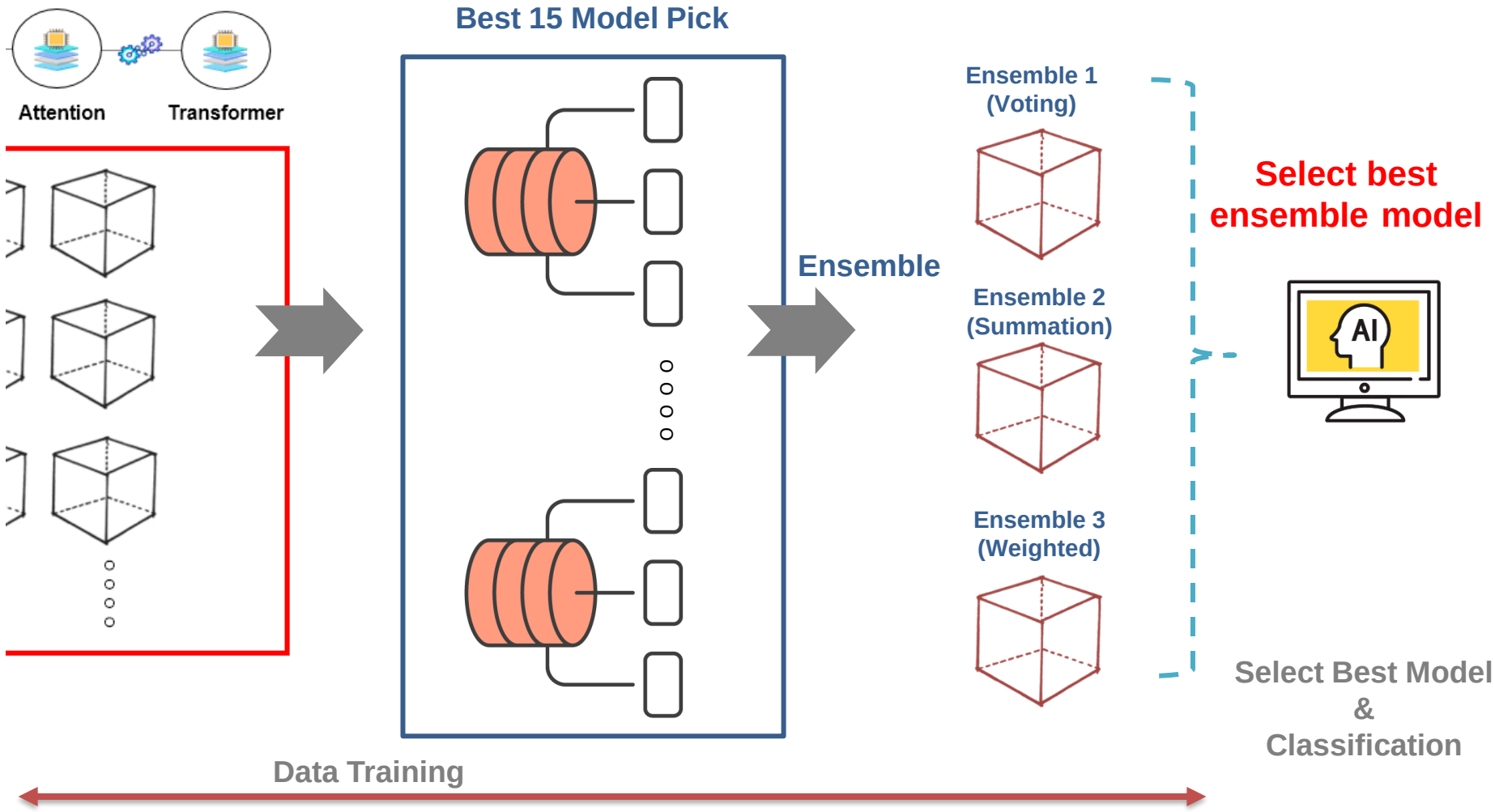
Training with 3 different way



AI tech Classification - Prism

How It works – Making Model

* Ensemble is selection of best estimate values



AI tech Classification - Prism

Solution !!

Now,

have **my own classifier** which is

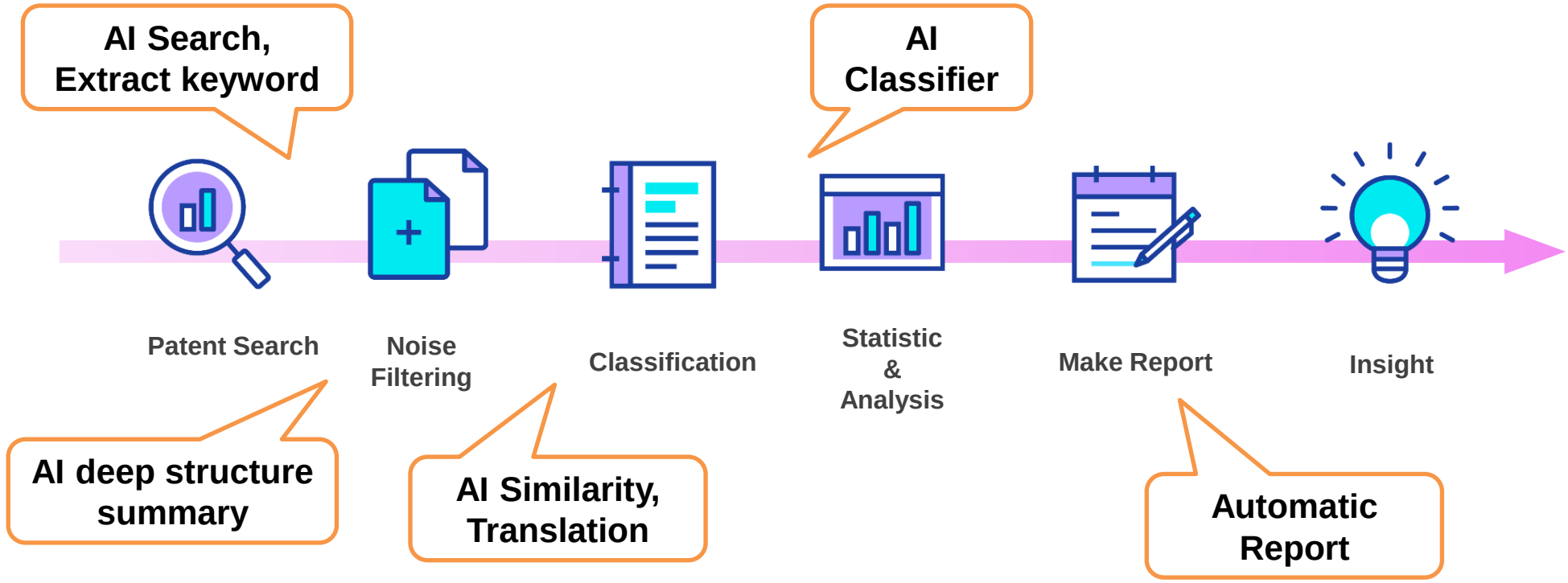
trained by my data.

Worldwide patent search & analysis

WIPS Global

General IP Working Process

❖ Patent search & analysis working process.



Insight

Newsletters

KIPO Establishes New Examination Bureau for Semiconductor Technologies

2023.07.20

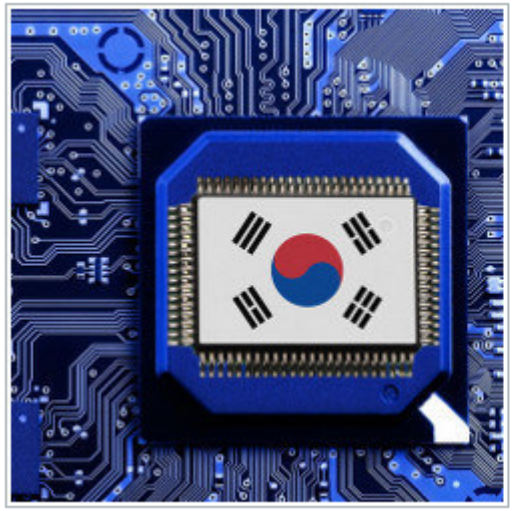
The Korean Intellectual Property Office (KIPO) has continued to make efforts to improve its examination system for semiconductor patent applications and bolster the competitiveness of Korea's semiconductor industry by establishing a new examination bureau dedicated to semiconductor technologies and recruiting additional examiners with substantial industry experience in the semiconductor field.

- From KIM&CHANG Newletter

Insight

EAST ASIA AND OCEANIA REGION SPECIAL SECTION: BIG TRENDS

South Korea's Nationwide Effort for AI Semiconductor Industry



As global competition in the semiconductor industry has intensified with trade conflicts and semiconductor shortages, major countries worldwide have started to work on their government policy and investment plan to win technological hegemony. South Korea's semiconductor industry, which makes up almost 20% of the nation's gross domestic product (GDP), is heavily concentrated on the memory semiconductor sector.[5] It dominates the global memory semiconductor market with a 56.9% share but has little influence on the other sectors of the industry, including logic, analog, and optical discrete, where it has less than a 3% market share. To grow the nation's biggest industry further, South Korea has put a priority on non-memory sectors. The emerging AI chip market is an especially great

- From COMMUNICATION OF THE ACM

Insight

South Korean Government to Plan on National Semiconductor Mega Project

South Korea is looking to start national semiconductor R&D project that are going to need $2.2 billion (2.5 trillion KRW) of investments very soon in order to grab an upper hand in next-generation semiconductor industries that will lead Industry 4.0 and to maintain its position as the powerful nation of semiconductors.
Ministry of Science and ICT (MSIT) and Ministry of Trade, Industry and Energy (MOTIE) are currently planning national semiconductor R&D project, which have duration of planning of 10 years, that cover every department. Semiconductor experts from government research institutes such as Electronics and

- From Korea IT News

Insight

Korea's new push in semiconductors

Samsung Electronics, SK Hynix Create 200 Million Won Fund for Semiconductor Industry. (Image: Yonhap)

- From Korea’s Information Society

Patent Database Today !

“ How is AI being leveraged in IP systems ? ”

- For review technology and its analysis – System
- In house data (specific) – Patent database
- Using AI technology – Customized AI SLLM

WIPS Today !

WIPO 8th ASEAN IP Register Regional Coordinators Meeting

Thank you

E-mail: global@wips.co.kr