Yunha Lee

Multi-agent AI systems (MCP/A2A) · computer vision · full-stack
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EDUCATION

2026 – 2030
Stanford University
B.S. Computer Science

2021 – 2026
Taejon Christian International School
IB Diploma
– HL: Computer Science, Physics, Mathematics AA. SL: English A Language & Literature, Korean A Literature, Economics.

EXPERIENCE

Jul – Aug 2026
Product Developer
dochak inc. · Daejeon, South Korea
– Built **Prism**, the company's VISSIM model-validation product, end to end: a dashboard where a traffic engineer inspects a simulation network in the browser and reviews AI-proposed model edits before any of them run, plus the backend driving VISSIM.
– Designed the validation doctrine behind it: 117 traffic-engineering constraints that refuse edits PTV VISSIM itself accepts silently and then reports as correct.
– Built a single-use approval gate so one human click authorises exactly one simulation edit, making forged or replayed approvals structurally impossible.
– Next.js 16, React 19, TypeScript, Tailwind 4, D3, Leaflet; FastAPI and Python driving VISSIM.

Jun 2025 – Jun 2026
Full-Stack Web Developer & UI Designer
dochak inc. · part-time
– Built and deployed the company's public website: an 18-page React 19 application, continuously deployed.
– Built a reusable design system of layout and motion primitives, plus a bilingual Korean/English content layer across every page.
– Integrated third-party live chat; shipped features iteratively working directly with the CEO.

Jul – Aug 2026
Web Developer, TUPA Lab
CCS Graduate School of Mobility, KAIST
– Built and deployed the lab's website: Next.js 14, TypeScript, Tailwind, Notion as CMS on Vercel, with bilingual rendering and embedded fallbacks if the CMS goes down.
– Replaced the lab's previous website, built so the professor can edit all content herself through Notion without a developer.

Jun – Aug 2025
Research Intern, TUPA Lab
CCS Graduate School of Mobility, KAIST · Daejeon, South Korea
– Recruited by Prof. Inhi Kim after press coverage of the ISEF project.
– Built a multi-agent ambulance-to-ER matching system using LLM, MCP and A2A.
– Built an MCP-based research tool for the lab; presented findings at the lab forum.

2024 – 2025
Project Lead & Inventor
Marketing, Communication and Development, TCIS
– Built a TSP-based routing tool with map APIs generating shortest and fastest routes for 6 buses.
– Cut 8 hours of manual scheduling to under a minute; deployed at TCIS.

2024 – 2026
Founder & President
TCIS Coding Club
– Founded the club; ran CSS and JavaScript workshops; led development of 7 club websites.
– Mentored research design for 8 science-fair teams; taught 80+ students at a city science festival.

SELECTED PROJECTS

2025

Ambulance-to-ER matching system

KAIST TUPA Lab · patent pending

– Multi-agent AI matching ambulances to emergency rooms in real time, built on LLM, MCP and A2A.
– First place in the Ministry of Land, Infrastructure and Transport's national competition, judged against startups and research institutes rather than in a student category.
– Built and tested on open-source sample data; the hardest part was the prompt engineering.

2024 – 2025

Vision-AI adaptive crosswalk system

Independent research · copyright C-2024-042501

– Computer-vision system detecting walking speed and extending crosswalk timing for people who move slowly; invented the underlying speed-estimation algorithm.
– 94% detection accuracy over 10 trials on public CCTV footage; 8.9% speed-estimation error at 0.5, 1.0 and 1.5 m/s; simulated congestion –16.4% when signals shorten, +8.7% when they extend. Arduino prototype drives the physical signal over serial.

2026

VISSIM simulation dashboard (Prism)

dochak inc.

– Browser dashboard for PTV VISSIM models with an LLM agent behind a human approval gate: the engineer asks in plain Korean or English for a change to demand or signal timing, the system proposes it, checks it against 117 constraints, and executes nothing until a person approves.

2024 – 2025

School bus routing tool

TCIS · patent pending

– TSP solver plus map APIs across 6 buses; reduced 8 hours of manual scheduling to under a minute.

2026

KAIST TUPA Lab website

inhi.kim

– Next.js 14, TypeScript, Tailwind, Notion as CMS on Vercel. Bilingual rendering, ISR caching, and a Notion-first data layer with embedded fallbacks.

HONORS & AWARDS

Dec 2025

Minister's Award, 1st place

Ministry of Land, Infrastructure and Transport, Republic of Korea

– National service idea competition, judged against startups and research institutes. $70,000 in government funding awarded.

May 2025

Mawhiba Special Award, 1st place

Regeneron ISEF

– Full scholarship to King Fahd University of Petroleum & Minerals.

May 2025

HP Innovator Award ($2,000), Special Award

Regeneron ISEF

2025

Government-selected delegate & Team Leader

Global Youth Science Expedition, Ministry of Science and ICT

– One of 17 selected nationwide. Led a 6-member team on a funded STEM expedition to NASA, MIT, Harvard and Yale.

2024

Silver Award

Korea Code Fair, National Information Society Agency President's Award

2024 – 2025

Board of Trustees Merit Scholarship ($3,500)

Taejon Christian International School

SKILLS & LANGUAGES

Core	Multi-agent systems, computer vision, traffic simulation
Technical	MCP, A2A, Python, TypeScript, React, Next.js, LLM applications, VISSIM, route optimisation, full-stack development, UI/UX design
Languages	Korean (native), English (full professional)