

Juwon Lee (Henna)

AI & Robotics Educator · Full-Stack Developer

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SUMMARY

Developer and educator who turns ideas into working services that reach people. Experienced across the full AI pipeline — deep-learning modeling (YOLOv8, VGG16) and reasoning-dataset construction & QA — with a particular strength in making intelligence act in the physical world through IoT and robotics, from a smart-farm platform to a companion care robot. At the Seoul Robot & AI Science Museum, builds and operates interactive education web apps used daily on the exhibition floor, and delivers bilingual (Korean / English) education as a docent, mentor, and instructor.

TECHNICAL SKILLS

AI & Data	Python · YOLOv8 · VGG16 / CNN · Multimodal AI · Data Labeling & QA · Roboflow
Web & App	JavaScript · TypeScript · Next.js · React · Vite · HTML / CSS · Tailwind · Java
Backend & Cloud	Supabase · Firebase · Flask · Vercel Serverless · Cloudflare R2 · OpenAI API · PWA
Hardware & IoT	ESP32 · Arduino / C++ · MicroPython · Sensors (PIR, capacitive touch, GC9A01) · 3D Printing
Planning & Education	SW Planning · Learning Design · Bilingual Docent / Instruction · Git · Notion · Slack
Languages	Korean (native) · English (professional working proficiency)

PROFESSIONAL EXPERIENCE

Education Content Planner & Developer

2026.03 – Present

[Seoul Robot & AI Science Museum](#) — Education Team · Seoul, KR

- Build and operate interactive education web apps — “AI Art Lab” and “AI Language Lab” — live on the museum floor; the Art Lab alone generates ~142 images on weekdays and ~557 on weekends.
- Co-designed a smart-farm education program with the Yangpyeong Education Office, building the full server & web-app environment, including a location-based weather API and YOLO model training.
- Self-initiated and shipped operations & exhibition content — a staff scheduling app, a 2nd-anniversary AI photo booth, and a metaverse of the permanent exhibition — solving real on-site problems.
- Guide permanent and special exhibitions in both Korean and English, and support the multipurpose education rooms.

Data Contributor & QA

2025.11 – 2026.01

[Select Star](#) · Seoul, KR

- Built complex 3-hop reasoning Q&A datasets used to train and evaluate AI models, and validated labeling quality.
- Achieved 2.5× the team-average data throughput while maintaining high accuracy.

Youth Intern

2025.04 – 2025.07

[Ministry of Science and ICT](#) · Sejong, KR

- Redesigned the national Pay-TV survey and drafted Broadcasting Act review materials, contributing to the approval of Q2 regional commerce channels.
- Covered 11 ministry-hosted exhibitions and conferences, distilling complex sessions into concise reports and issue briefs for decision-makers.

EDUCATION

Hankyong National University

B.Eng. in Software Convergence · B.Ag. in Plant Life & Environment (double major)

Rutgers University — Intensive Winter English Program

2025.01 – 2025.02

Academic English & cross-cultural communication · New Brunswick, NJ, USA

SELECTED PROJECTS

doctor-green

AI · IoT Full-Stack · Personal

A smart-farm platform unifying YOLOv8 crop-disease diagnosis with real-time IoT environment monitoring in one web platform.

- Architected the data flow: IoT sensing → Flask relay server → Supabase → real-time Next.js visualization.
- Applied YOLOv8 to USB-camera video to detect 7 crop-disease classes; first training run (50 epochs) reached mAP50 ≈ 0.95.
- Enabled real-time actuator control (LED, fan) from the web app via Supabase Realtime.

Tech: Next.js · React · TypeScript · Supabase · Flask · ESP32 / MicroPython · YOLOv8 · Roboflow

Live: doctor-green-nine.vercel.app

Raimi's AI Art Lab

Seoul Robot & AI Museum · Education Content

An education web app where visitors build a prompt step-by-step and an AI generates the artwork — running live at the museum.

- Averages 142 generated images on weekdays and 557 on weekends; a custom backend measured generation volume for the first time.
- Eliminated 100% of the connection conflicts of the previous off-the-shelf GPT service by shipping a custom web app and backend.
- Designed a 10-step (+5 advanced) choice-based prompt builder; added QR takeaway, auto-watermarking, and kiosk lockdown as a PWA.

Tech: JavaScript · OpenAI API · Vercel Serverless · Supabase · Cloudflare R2 · PWA

ATO — Companion & Care Robot (with YAKMOA)

AI Healthcare · Care Robot · Personal & Team

A rabbit-shaped emotional companion robot for people living alone and seniors, extended with “YAKMOA” multimodal-AI medication care.

- Built end-to-end — circuit design, firmware, 3D-printed body, and microfiber cover pattern.
- Dual GC9A01 round LCDs as expressive eyes on an ESP32; integrated PIR proximity, capacitive petting, DFPlayer audio, and servo ear/arm motion.
- Integrated YAKMOA — multimodal-AI medicine recognition and dose management — designed for digitally vulnerable users and people with disabilities (competition award).

Tech: ESP32 · Arduino / C++ · GC9A01 · Servo / PIR / Touch · 3D Printing · Multimodal AI

SEOUL RAIM Staff Platform

Seoul Robot & AI Museum · Internal Ops Tool

A self-initiated staff platform managing docent & part-timer schedules, roster, live duty status, and notices in one app.

- Refactored a single-HTML prototype into a Vite + React app backed by Firebase (Firestore).
- Set up internal iOS / Android distribution with Capacitor.

Tech: React · Vite · Firebase · Capacitor

Smart-Farm Education Program

Seoul Robot & AI Museum × Yangpyeong Education Office

A hands-on program where students work with an IoT smart farm and YOLO crop diagnosis — built end-to-end, including the server and web app.

- Integrated a location-based weather API to tie lessons to real growing conditions.
- Guided students through the YOLO training process (epoch experiments, loss reduction) and live database updates at their level.

Tech: YOLO · Weather API · Server · Web App · IoT

ADDITIONAL PROJECTS

- **Raimi's AI Language Lab** — A speech-synthesis (TTS) language-learning game web app; KO / EN, PWA offline on exhibition tablets.
- **I'm a Restorer!** — An interactive web game for restoring Korean cultural heritage, used as a museum exhibition program (GitHub Pages).
- **RAIM AI Photo Booth** — A 2nd-anniversary four-cut photo booth with QR takeaway and AI best-shot selection.
- **RAIM Metaverse** — An online permanent exhibition that widens access for visitors turned away by full on-site bookings.

AWARDS

Prize — GH Youth Build-Up Start-up Competition	2026.03
Gyeonggi Housing & Urban Dev. Corp. · "YAKMOA" medication-management service for digitally vulnerable users & people with disabilities (team MAKENEW, 2).	
2nd Place — National Science Museum & Community AI Hackathon	2025.09
Built an "AI docent for museum-community co-prosperity" in a 24-hour overnight hackathon.	
3rd Place — 2024 ICT-SW Women's Start-up Competition	2024.12
Korea IT Businesswomen's Association · VGG16-based plant-disease diagnosis app (team lead, MAKENEW).	
3rd Place — Chungnam Generative-AI Tech Start-up Idea Competition	2024.10
Ministry of Science and ICT · led planning, development, and the final pitch.	
3rd Place — HKNU "HK StarUP&GO Audition" Start-up Competition	2024.10
Led team MAKENEW (6) end-to-end, from team building to the presentation.	

LEADERSHIP & ACTIVITIES

Geuruteogi Learning Mentoring 'Gachi-Edu' — University Mentor (6th cohort)	2026.02 – Present
Provide learning mentoring for youth, supporting study habits and self-directed learning at each mentee's level.	
CIEE SEOULMATE — Mentor for International Students	2025.06 – 2025.12
One-on-one Korean-language & culture mentoring; planned cross-cultural exchange programs.	
2025 Youth SW-Donghaeng Hackathon — University Mentor (Planning & Dev)	2025.07
Guided young participants from planning to architecture so teams could ship an MVP within the hackathon window.	
2024 SW-Donghaeng Project — Youth Mentor	2024.09 – 2024.12
Ran a semester-long program where students solved real social problems with SW / AI.	
Hankyong Start-up Club (MAKENEW) — Team Leader	2024.07 – 2025.02
Directed a VGG16-based plant-disease diagnosis app; coordinated dev, marketing, and design sub-teams.	
LS Group & Green Umbrella — Science Instructor (LS Dream Science)	2024.07 – 2024.08
Lead instructor for a month-long hands-on science program for elementary students.	
KB Kookmin Bank — Mentor, KB LA School	2024.03 – 2026.02
Taught online — Grade-11 Math I & Chemistry (2024), Grade-10 Math (2025); guided measurable grade improvement.	