Hoseong Ahn

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Education

Sungkyunkwan University Suwon, KR

Bachelor's of Science, Dept. of Intelligent Software, College of Computing & Informatics (CCI) *Mar 2025 — Present*

- Cumulative GPA: 4.36/4.5
- 2nd Semester GPA: 4.45/4.5
- 1st Semester GPA: 4.26/4.5
- Relevant Coursework: Basis & Practice in Programming, Introduction to Data Structures, Linear Algebra, Introduction to System Programming, Probability & Statistics, Computer Programming for Engineers, Introduction to Artificial Intelligence, Introduction to Computer Architectures

Hana Academy Seoul Seoul, KR

High School *Mar 2022 — Feb 2025*

- Cumulative GPA: 3.43/4.0
- Relevant Coursework: Data Structures & Algorithms, Artificial Intelligence & Future Society, Computational Physics, Programming, AP Computer Science A, Advanced Discrete Mathematics, Basic Programming

Work Experience

Research Internship Jul 2025 — Present

Speech, Language, Perception, and Reasoning (SLPR) Lab., Sungkyunkwan University *Suwon, KR*

- Proposed Whisper-CD, a training-free multi-negative contrastive decoding framework that reduces hallucinations, repetition loops, and content omissions in long-form ASR, achieving up to 24.3 pp WER reduction on CORAAL with 48% faster throughput than beam search
- Designed and implemented a privacy-preserving hybrid voice assistant (Famigo) for multi-user family environments, integrating on-device speaker verification with cloud-based language models
- Conducted evaluation of hallucination patterns in multimodal LLMs under diverse acoustic conditions including noise, reverberation, and accented speech
- Currently researching efficient inference methods for automatic speech recognition systems

Publications

Whisper-CD: Accurate Long-Form Speech Recognition using Multi-Negative Contrastive Decoding, Preprint (arxiv.org/abs/2603.06193) 2026

- Contributors: **Hoseong Ahn**, Jeongyun Chae, Yoonji Park, Kyuhong Shim
- Contributions: Proposed multi-negative contrastive decoding for long-form ASR, primary implementation and experiments, manuscript preparation

Famigo: A Privacy-Preserving Hybrid Voice Assistant for Multi-User Family Environments , ICEIC 2026 (doi.org/10.1109/iceic69189.2026.11385934) 2025

- Contributors: **Hoseong Ahn**, Junwon Moon, Hansol Park, Kihun Lee, Kyuhong Shim
- Contributions: Primary implementation and framework design, manuscript preparation

Evaluating Hallucinations in Multimodal LLMs with Spoken Queries under Diverse Acoustic Conditions, Preprint (arxiv.org/abs/2510.08581) 2025

- Contributors: Hansol Park, **Hoseong Ahn**, Junwon Moon, Yejin Lee, Kyuhong Shim
- Contributions: Conducted experiments and contributed to manuscript review and editing

Extracurricular Activities

UCPC 2025 (Union of Clubs for Programming Contests) Jul 2025

- Advanced to the finals (42nd place) of UCPC 2025, a nationwide collegiate programming contest organized by the Korean university algorithm club union, as team "꿈속에서null을만나"
- Ranked 48th in the preliminary round, qualifying for the on-site finals
- Contest page: 2025.ucpc.me

Qualcomm Edge AI Developer Hackathon - Korea Jul 2025 — Aug 2025

- Developed Famigo, an on-device AI assistant with voice interface and shared memory features for family environments
- Integrated multiple system components to run natively on Snapdragon X Series-powered Copilot+ PC
- Implemented edge AI-based application leveraging on-device processing for privacy-preserving voice assistance
- Project repository: BetaTester772/famigo_ui

Google Developer Groups on Campus, Sungkyunkwan University Sept 2025 — Present

- Participated in "Global IT Expert Meets Kingoins" tech talk series hosted by GDG on Campus SKKU
- Delivered a presentation on semiconductor technology to fellow developers and students

2025 SKKU Casual Hackerthon Sept 2025

- **Awarded 2nd Place** — Extended Famigo into Famiso, addressing the hackathon theme of "isolation" by rebalancing family connection and personal space
- Added Instagram Stories-inspired sharing features, allowing family members to post photos and text updates
- Developed AI-powered daily briefing system that synthesizes each member's stories into 3-line summaries
- Implemented family-wide 1-minute consolidated briefing delivered once per day to maintain connection across distances

2025 RE:ALTHON Joint Hackathon Nov 2025

- Built SetTransformer-inspired histogram prediction model (ISAB-style encoder) to estimate class grade distributions from limited score samples
- Achieved near-perfect accuracy with MSE 0.003, JS Divergence 0.03, and EMD 0.03 against ground truth distributions
- Developed FastAPI backend with Redis caching, and OpenAI API integration for personalized study advice
- Deployed on Oracle Cloud with Docker containerization (FastAPI + Redis + Caddy reverse proxy)
- Project repository: BetaTester772/2025-realthon

Skills

- **Programming Languages**: Python, C/C++, HTML/CSS/JavaScript, Java
- **Technologies**: PyTorch, TensorFlow, FastAPI, Svelte, Tailwind CSS, Git, UNIX(Linux), Docker, Caddy