

# Donghee Hong

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## Research Interests

Visual analytics, parameter optimization, Human-in-the-Loop systems, user-centered design, human-AI collaboration

## Education

### Sungkyunkwan University (SKKU)

M.S. IN ARTIFICIAL INTELLIGENCE (EXPECTED FEBRUARY 2026)

Suwon, Korea

Mar 2024 - Present

- Cumulative GPA: 4.5/4.5

### Sungkyunkwan University

B.S. IN COMPUTER SCIENCE AND ENGINEERING

Suwon, Korea

Mar 2020 - Feb 2024

- Cumulative GPA: 4.35/4.5 (98.5%), Major GPA: 4.38/4.5
- Graduated Summa Cum Laude, Class Rank: 2/160

## Research Experience

### Interactive Data Computing Laboratory (IDCLab), SKKU

RESEARCH ASSISTANT (ADVISER: PROF. JAEMIN JO)

Suwon, Korea

Aug 2022 - Present

- Led, as first author, the development of **HyPockeTuner**, a mobile interactive HPO system featuring EventCrumb, a novel event sequence visualization tailored for smartphones that unified HPO progress, user interventions, and outcomes on a single timeline
- Led research as first author on **Symetra**, a visualization system for analyzing hyperparameters and their impact on symbolic execution engines, and collaborated with domain experts in software testing
- Conducted multiple user studies including formative studies (N=8), case studies with domain experts (N=4), expert interviews (N=2), and controlled lab studies (N=12) to evaluate system designs and inform iterative development
- **SAE Feature Visualization** (Sep 2025–Present): Contributed to the development of a web-based interactive dashboard and visualizations for the analysis of Sparse Autoencoder (SAE) features in a neural network interpretability project

### Data-driven AI Security HCI (DASH) Laboratory, SKKU

RESEARCH ASSISTANT (ADVISER: PROF. SIMON SUNG-IL WOO)

Suwon, Korea

Dec 2020 - Jun 2022

- Participated in various real-world application projects and contributed to the construction of large-scale datasets
- Notably, contributed to the development of a model for detecting fake faces, regardless of mask usage

## Publications

### UNDER REVIEW

- [6] **Hong, D.**, Lee, B., Seo, J., & Jo, J. (under review at CHI). HyPockeTuner: enabling mobile hyperparameter optimization through a novel event sequence visualization.
- [5] **Hong, D.**, Kim, M., Cha, S., & Jo, J. (under review at IEEE PacificVis). Symetra: visual analytics for the parameter tuning process of symbolic execution engines.

### PUBLISHED

- [4] **Hong, D.**, Kim, M., Cha, S., & Jo, J. (2025). Symetra: visual analytics for tuning symbolic execution engines. *IEEE VIS (Poster)*.
- [3] Park, S., Park, J., & **Hong, D.** (2024). A system for generating image prompts using large language models for wheelchair spoke guard design. *Proceedings of the Korean Computer Science Society Conference*, 918–920.
- [2] Lee, S., Ko, D., Park, J., Shin, S., **Hong, D.**, & Woo, S. S. (2022, May). Deepfake detection for fake images with facemasks. *Proceedings of the 1st Workshop on Security Implications of Deepfakes and Cheapfakes*, 27–30.
- [1] An, J., Kim, J., Lee, H., Kim, J., Kang, J., Shin, S., Kim, M., **Hong, D.**, & Woo, S. S. (2021, December). VFP290k: a large-scale benchmark dataset for vision-based fallen person detection. *The Thirty-Fifth Conference on Neural Information Processing Systems Datasets and Benchmarks Track (Round 2)*.

# Presentation

Hong, D. (2024, Oct). ViSTrics: A visual analytics tool for software testing. Korean Visualization Workshop (K-VIS), Seoul, Korea.

# Selected Projects

## PediaViz: Interactive Timeline Dashboard for Pediatric Medication and Test Analysis

IDCLAB, SKKU COLLABORATING WITH SEOUL NATIONAL UNIVERSITY HOSPITAL & NAVER CORPORATION Feb 2024 - Present

- Integrating natural language diagnostic data into the system, creating a multimodal system that seamlessly combines structured clinical measurements with unstructured textual assessments for comprehensive patient analysis
- Designed and implemented a web-based interactive dashboard that synchronizes patient growth records, lab results, and medication history on a unified timeline
- Built custom visualization components to help pediatricians identify patterns and correlations between treatments and test results

## Spokeguard Design Assistant for Young Wheelchair Users

CO-DEEP LEARNING PROJECT, SKKU Sep 2023 - Dec 2023

- Developed an AI model that converts Korean design descriptions into appropriate image-generation prompts for young wheelchair users
- Addressed the accessibility gap for children with disabilities by eliminating the need for complex English prompts in text-to-image platforms

## License Plate Recognition Mobile Application

UNDERGRADUATE RESEARCH PROGRAM (URP), SKKU Jan 2021 - Sep 2021

- Built end-to-end pipeline from dataset construction and model training to mobile application deployment
- Published on Google Play Store with 1,000+ downloads

# Teaching Experience

## TEACHING ASSISTANT

Introduction to Human-Computer Interaction (Fall 2024, Fall 2025); Information Visualization (Spring 2025); Problem Solving (Fall 2025); Computer Programming for Engineers (Spring 2023, Spring 2025); Python Programming Orientation for Freshmen (2021-2023)

## TUTORING AND MENTORING

SKKU Peer Tutoring Program (Spring 2021); SKKU Software Mentoring Program (2020-2021)

# Awards and Honors

## SCHOLARSHIPS

**Graduate Scholarship, SBS CULTURAL FOUNDATION** Sep 2024 - Feb 2026

- Full tuition and annual stipend of \$8,225
- Around 15 students selected nationwide (acceptance rate: 4%)

**Graduate Scholarship, DAESANG FOUNDATION** Mar 2024 - Jun 2024

- Stipend of \$4,800 per semester

**The Presidential Science Scholarship, KOREA STUDENT AID FOUNDATION** Mar 2022 - Dec 2023

- Full tuition and annual stipend of \$3,500
- Approximately 150 students selected nationwide

**SKKU Software Scholarship, SKKU** Mar 2020 - Dec 2022

- Full tuition for two years (contingent on maintaining an overall GPA above 3.5)

## Additional Internal Scholarships, SKKU

- Extracurricular Challenge Scholarship (2023); Student Success-Leadership Scholarship (2021, 2022); Department Recommendation Scholarship (Fall 2021)

## AWARDS

## Grand Prize, Co-Deep Learning Project Competition, SKKU

Dec 2023

- Ranked top 2 out of 16 teams

## Participation Award, SW-Centered College AI Competition, SW-CENTERED UNIVERSITY ASSOCIATION

Dec 2023

- Ranked top 8 out of 194 teams

## Dean's List Award, College of Computing and Informatics, SKKU

Spring & Fall 2020, Fall 2021

# Leadership and Extracurricular Activities

## SKKU-BA-DIVE Program

London, UK

TEAM LEADER

Jan 2023

- Led field research and interviews with industry professionals in IT and AI

## Uni-DTHON Competition

Seoul, Korea

DATA-THON TRACK LEADER

Dec 2021 - Dec 2022

- Coordinated AI competition planning across six major universities in South Korea, designing competition problems and implementing leaderboard evaluation

## Student Council, College of Computing and Informatics

Suwon, Korea

VICE PRESIDENT

Nov 2021 - Nov 2022

- Organized in-person academic events and facilitated communication between students, faculty, and partner universities

## University Student Council Joint Committee

Seoul, Korea

COLLEGE REPRESENTATIVE

Nov 2021 - Nov 2022

- Represented the College of Computing and Informatics to discuss and decide on university development issues

## Global Challenge Program

Silicon Valley, USA

DEPUTY TEAM LEADER

Jun 2022

- Conducted field research and interviews with IT professionals

## Community Service

Suwon, Korea

VOLUNTEER

2020 -2024

- Over 100 hours of community service

# Technical Skills

## Research Methods

Semi-structured interviews, Thematic Analysis, Case Studies, Controlled Lab Studies, Formative Studies

## Programming

TypeScript and JavaScript (Advanced, 3+ years production experience), Python (Advanced), Java, C and C++

## Visualization & Frontend

D3.js & visx (Advanced, custom interactive visualizations), React (Advanced), Tailwind CSS, HTML/CSS

## Data Analysis & Backend

Pandas, NumPy, Scikit-learn, FastAPI

## Tools

Git, Figma, LaTeX, Adobe Premiere Pro