# Dahye Hong

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## Education

**University of Southern California (USC)** Jan 2025 – Present
Master of Science in Computer Science Los Angeles, CA, USA
- **Coursework:** Machine Learning, Algorithms, Robotics

**Sookmyung Women's University** Mar 2018 – Feb 2024
Bachelor of Engineering in Software Convergence Seoul, South Korea
- **Awards:** Academic Excellence Scholarship; Honor Student Award

## Publications

**LaughTalk: Expressive 3D Talking Head Generation With Laughter**
*Winter Conference on Applications of Computer Vision (WACV)*, 2024.
arXiv | project page

**Enhancing User Well-being Through an AI-Based Healing Service**
*Korean Society of Information Processing (Conference)*, 2022.
paper

## Experience

**San Diego Supercomputer Center (SDSC), UC San Diego (UCSD)** — Research Intern Jun 2025 – Present
- Built a **CV pipeline** to detect **dust/UFO** events in **tokamak plasma** shots; designed **annotation masks & preprocessing** and prepared **YOLOv8** fine-tuning data.
- **Visualized dust growth trends** over time and across reactor components with **analytic graphs** to support **plasma research** teams.

**POSTECH (Pohang Univ. of Science & Technology)** — Research Intern, LaughTalk Jun 2023 – Oct 2023
- Contributed to ***LaughTalk***, a **3D talking-head** generation project that integrated laughter as an expressive modality (**https://laughtalk.github.io/**).
- Built a **two-stage pipeline**: (1) **laughter classification** from in-the-wild and MEAD datasets, and (2) **expressive talking-head generation** with **FaceFormer** fine-tuning.
- **Curated and processed laughter data**; improved **alignment** between speech, lip motion, and laughter cues.
- Designed and conducted **user studies** on **synchronization** and **perceptual realism**; contributions supported the **WACV 2024** publication.

**Sogang Univ. Audio Signal Processing & Multimodal Lab** — Undergraduate Researcher Jan 2023 – Feb 2023
- Studied **audio DSP** ( **STFT**, **mel-spec**) and implemented CNN-based audio classification.
- Built a **Siamese speaker-verification** baseline with shared weights and **contrastive loss**; experimented with VGG/ResNet/ECAPA-TDNN.

## Projects

**App for Counting Café Empty Seats** — Team Lead Dec 2022 – Jun 2023
- **Fine-tuned YOLOv8** to count seats from CCTV frames; served results to an Android client via Flask on AWS.
- Wrote crawlers & preprocessing; stored real-time counts in Firebase; delivered live occupancy UI and stats.

**AI-Based "Healing Service" by Facial Expression** — Team Lead Mar 2022 – Nov 2022
- Built **an end-to-end system**: trained VGG-16/ResNet-50 for facial emotion recognition, deployed via Docker+Heroku, and integrated Raspberry Pi for face capture & LED control.
- Delivered a working prototype with OTT recommendations, mood lighting, and a daily emotion log.
- Outcomes included a conference paper.

**Story Generation Diffusion** — Team Project Dec 2022 – Jan 2023
- Controlled Stable Diffusion conditioning to maintain consistent illustration style for storybook scenes; analyzed style–content trade-offs.

## Honors and Awards

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| Academic Excellence Scholarship at Sookmyung Women's University | 2023, 2021 |
| Honor Student Award at Sookmyung Women's University | 2023 |
| Honorable Mention at HANIUM ICT Mentoring Contest | 2022 |
| Snowflake Award at Big Data Learning Idea Contest | 2022 |

## Teaching

**Alpaco the Digital New Software.AI Camp** Jan. 2024 – Dec. 2024
Assistant Instructor Seoul, South Korea

- Assisted in fostering digital competencies, including professional software and AI experiences, for elementary, middle, and high school students.

**Seongbin English Academy** Feb. 2024 – Aug. 2024
Teaching Assistant Seoul, South Korea

- Assisted with exam preparation, grading, and student performance tracking.

**SWAI Education Camp** Feb. 2022
Assistant Instructor Seoul, South Korea

- Python Education Initiative for High School Students

## Skills

**Technical Languages:** Python, C++, Java, MATLAB, LaTeX
**Frameworks:** PyTorch, TensorFlow, Scikit-Learn, NumPy, Pandas, Matplotlib, OpenCV, Flask
**Tools:** Docker, AWS, Firebase, Git, Bash, Raspberry Pi