

Catherine Hae Seung Jeon

[Google Scholar](#) — [ORCID](#) — [GitHub](#) — [LinkedIn](#) — [Website](#)

RESEARCH INTERESTS

- ❖ **AI for Real-World Applications**
 - *AI for Security, AI for Healthcare, AI for Network Analysis, Trustworthy AI*
- ❖ **AI Generalization and Robustness**
 - *n-shot Learning, Continual Learning, Metric Learning, Data Augmentation*

EDUCATION

- ❖ **University of Chicago**
Ph.D. in Computer Science (Advisor: [Prof. Ben Y. Zhao](#))
Chicago, United States
09/2026 — Present
- ❖ **Ewha Womans University**
M.S. in Computer Science & Engineering (Advisor: [Prof. S.E. Oh](#))
Seoul, South Korea
09/2024 — 08/2026
 - GPA: 4.26/4.30
- ❖ **Ewha Womans University**
B.S. in Computer Science & Engineering
Seoul, South Korea
03/2020 — 08/2024
 - GPA: 4.15/4.30
 - Honors: Dean's List (7 out of 8 semesters), Summa Cum Laude

PUBLICATIONS

*Equally contributing authors, listed in alphabetical order.

†Legal name in South Korea: Haeseung Jeon; United States: Catherine Hae Seung Jeon.

❖ Conference Publications

Jeon, Haeseung, Cho, Y., Mathews, N., Jansen, R., Juarez, M., & Oh, S. E. "Brewing Under Pressure: More Realistic Tor Flow Correlation Considering Low FPRs." To appear in The 33rd ACM Conference on Computer and Communications Security (CCS), 2026. [[CORE A*](#)]

Park, J., **Jeon, Haeseung**, Ji, A., Piplai, A., Rahman, M. S., & Oh, S. E. "TabCL: Continual Malware Classification with Tabular-Aware Generation." In Pacific-Asia Conference on Knowledge Discovery and Data Mining (PAKDD), 2026. [[CORE B](#), [Acceptance Rate=25%](#)]

Jeon, Haeseung*, Kim, S.* , Mathews, N., Kang, H., & Oh, S. E. "RoFiRe: Robust Website Fingerprinting on Real-World Tor Traffic via Improved Augmentation and Normalization." In Proceedings of the ACM Web Conference 2026 (WWW), 2026. [[CORE A*](#), [Acceptance Rate=20%](#), [Oral](#)]

Hwang, C.* , **Jeon, Haeseung***, Hong, J., Kang, H., Mathews, N., Kim, G. & Oh, S. E. "Enhancing Search Privacy on Tor: Advanced Deep Keyword Fingerprinting Attacks and BurstGuard Defense." In Proceedings of the 20th ACM Asia Conference on Computer and Communications Security (ASIACCS), 2025. [[CORE A](#), [Acceptance Rate=20%](#)]

❖ Journal Publications

Kim, N., **Jeon, Catherine H. S.†**, & Bai, M. R. "Impedance-Based Acoustic Load Inference Using Intelligent Speaker Sensors." In IEEE Sensors Journal (SENSORS), 2026. [[SCIE](#), [Q1](#), [IF=4.5 \(JCR 2025\)](#)]

Kim, N., Nakamura, K., Chen, M., **Jeon, Catherine H. S.†**, & Bai, M. R. "Speakers as Sensors: Machine Learning-Based Earphone Impedance Analysis for Ear Canal Insertion Depth Prediction." In The Journal of the Acoustical Society of America (JASA), 2026. [[SCIE](#), [Q1](#), [IF=2.6 \(JCR 2025\)](#)]

❖ Short Paper/Poster Publications

Jeon, Haeseung, Hong, J., Hong, S., Kang, H., Kim, B., Oh, S. E., & Kim, N. "Domain-Adapted Automatic Speech Recognition with Deep Neural Networks for Enhanced Speech Intelligibility Prediction." In Proceedings of the 6th Clarity Workshop on Improving Speech-in-Noise for Hearing Devices (Interspeech Workshop), 2025. [Short Paper] [[Challenge Rank Top 5](#)]

Hwang, C.* , **Jeon, Haeseung***, Kim, G., Hong, J., Kang, H., & Oh, S. E. "Securing Search Privacy on Tor: Deep Keyword Fingerprinting and BurstGuard Defense." Presented at The 40th Annual Computer Security Applications Conference (ACSAC), 2024. [Poster] [[Challenge Rank Top 5](#)]

Hwang, C.* , **Jeon, Haeseung***, Kim, G., Hong, J., Kang, H., & Oh, S. E. "DKF: Employing Deep Learning for Keyword Fingerprinting Attacks on Tor." In Proceedings of the Korea Computer Congress 2024 (KCC), 2024. [Short Paper] [[Challenge Rank Top 5](#), [Distinguished Paper Award](#)]

RESEARCH EXPERIENCE

- ❖ **Ewha Womans University | AI Security Lab** *Seoul, South Korea*
Graduate Research Assistant & Lab Head (Advisor: Prof. S.E. Oh) *09/2024 — 08/2026*
- Proposed a robust few-shot model using LLM-inspired normalization (pre-norm, RMSNorm) and dynamic window-based augmentation. Achieved up to 9% gains over SimCLR-based SOTA across few-shot, concept drift, and open-set settings without large-scale pre-training.
 - Lead development of an advanced time-series embedding model utilizing CvT-style transformers, online hard negative mining, and KDE-based windowing. Performed strong TPR under extremely low FPR, demonstrating real-world viability of proposed model.
- Undergraduate Research Assistant** *01/2023 — 08/2024*
- Led research on the first DL-based network traffic fingerprinting model, achieving 41-55% gains over a previous SOTA. Built a Selenium crawler to collect 300K+ fresh samples over 1+ years, profiled unique data patterns, and benchmarked ML/DL baselines on a new dataset.
- ❖ **Purdue University | Sensor, Electro-Acoustics Technology Lab** *Indiana, United States*
Visiting Researcher (Research Advisor: Prof. N. Kim) *01/2026 — 05/2026*
- Built a CNN-based physical basis (acoustic load, temperature, humidity) prediction model using the electrical-mechanical-acoustic coupling characteristic of earphones. Accepted into the National I-Corps program with suggested framework.
- Part-Time Researcher** *05/2025 — 12/2025*
- Implemented a Whisper-based speech clarity prediction model to support hearing aid users. Suggested fine-tuning an ASR backbone with speech-in-noise audio and masked transcription for inaudibility simulation, and achieved 5th place in the CPC3 challenge.
- ❖ **UTEP | Intelligent & Quantum Secure Advanced Cyber Defense Lab** *Texas, United States*
Visiting Researcher (Research Advisor: Prof. M.S. Rahman) *06/2025 — 08/2025*
- Built a continual learning framework with a conditional tabular GAN and improved storage/training efficiency by generative replay. Drove experiments and achieved up to 16% improvements over the baselines (GAN and TVAE) in Class-IL/Time-IL scenarios.

INDUSTRY EXPERIENCE

- ❖ **Samyang Data Systems Inc. | Cloud Solutions Team** *Seoul, South Korea*
Cloud Engineer Intern *03/2023 — 06/2023*
- Implemented a Golang monitoring agent and E2E pipeline that collects, stores, and visualizes real-time metrics from AWS infrastructure by utilizing InfluxDB and Grafana. Deployed agents to 10+ client servers, ensuring software reliability through stress tests.

AWARDS & SCHOLARSHIPS

- UChicago Liew Family Fellowship — USD \$8K (5 yrs.) *FA 2026 — FA 2030*
- EWU Outstanding Academic Paper Award — KRW ₩1M (≈ USD \$750) *SP 2026*
- Boeing Korea Scholarship — KRW ₩4M (≈ USD \$3K) *SP 2026*
- EWU Research Assistant Scholarship — half-tuition *FA 2024*
- EWU Outstanding Ewha Scientist Admissions Scholarship — half-tuition (2 yrs.) *FA 2024 — SP 2026*
- Korea Computer Congress Distinguished Paper Award (top 6%) *SP 2024*
- EWU National Program of Excellence in Software Scholarship — KRW ₩1M (≈ USD \$750) *SP 2024*
- Huawei Korea ICT Talent Scholarship — KRW ₩1M (≈ USD \$750) *FA 2023*
- EWU Excellence Honors Scholarship (top 6%) — quarter-tuition *FA 2023*
- EWU Highest Honors Scholarship (top 2%) — half-tuition *FA 2020, SP 2022, SP 2023*
- EWU W4 Admissions Scholarship (top entrant) — full-tuition (4 yrs.) *SP 2020 — SP 2024*

COMMUNITY ENGAGEMENT

- EWU CS Undergraduate Lab Pair, Invited Speaker *09/2025*
- UTEP CS Summer Research Symposium, Invited Speaker *08/2025*
- EWU CS Undergraduate Open Lab Seminar, Invited Speaker *03/2025*
- GDSC Devfest π 2024: Responsible AI in action, Invited Speaker *03/2024*
- AWS Cloud Club (ACC), Cloud Team Executive *09/2023 — 08/2024*
- EWU Undergraduate Peer Tutoring Program, Lecturer *06/2022, 06/2024*
- Google Developer Student Clubs (GDSC), Backend Team Executive *09/2022 — 07/2024*