Taeyoung Yeon

Last Updated: October 22, 2025

Post-Baccalaureate Research Fellow
Northwestern University, Evanston, IL
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Research Interests

Human-Computer Interaction, Privacy-Preserving Mobile Computing, On-Device AI, Human Activity Recognition

Education

Seoul National University March 2017 - February 2024
Bachelor of Science in Computer Science and Engineering *Seoul, South Korea*
Overall GPA: 3.53/4.00, *Graduated **cum laude***

Publications

1. Taeyoung Yeon, Vasco Xu, Hank Hoffman, Karan Ahuja. **WatchHAR: Real-time On-device Human Activity Recognition System for Smartwatches.** *Proceedings of the 27th ACM International Conference on Multimodal Interaction (ICMI '25).* 2025.

- Led the project as the first author, developing a comprehensive on-device activity recognition system
- Developed a real-time multimodal sensing system for human activity recognition on Apple Watch Series 7, utilizing audio and inertial measurement unit sensors
- Optimized audio processing pipeline by integrating a GPU-based log-mel spectrogram preprocessor with a MobileNetV3 backbone, enabling real-time inference at 20Hz
- Applied advanced model optimization techniques to achieve 25× performance acceleration while reducing model size by 10×, maintaining over 90% classification accuracy

Demos

Research demonstrations presented to industry partners:

- Google Platform and Experiences
- Qualcomm XR
- Adobe Research
- Dolby Studios

Research Experience

Post-Baccalaureate Research Fellow September 2024 - Present
Northwestern University, SPICE Lab, advised by Prof. Karan Ahuja *Evanston, IL*

- Conducting research on human activity sensing, machine learning, and on-device AI systems
- Established laboratory infrastructure and managed GPU computing resources, including network-attached storage and server systems
- Developing scalable infrastructure for large-scale dataset collection and inertial sensor-based navigation systems

Professional Experience

Full Stack Game Developer (Alternative Military Service) September 2019 - February 2023
Awesomepiece *Seoul, South Korea*

- Managed live game services as part of Alternative Military Service obligation
- Developed in-game content and managed server infrastructure for large-scale multiplayer games
- Promoted to Development Team Leader in recognition of outstanding performance and leadership

CUDA Engineer Intern July 2019 - August 2019

MindsLab *Pangyo, South Korea*

- Achieved significant speed improvements in Tacotron 2 text-to-speech module using CUDA Multi-Process Service
- Developed Python-based profiling tools to assess and optimize deep learning model performance

Technical Skills

Programming Languages: Python, Java, C#, JavaScript, Kotlin, Swift, CUDA
Machine Learning: TensorFlow, PyTorch, CoreML, scikit-learn, model optimization
Mobile & VR Development: Unity (Meta SDK), iOS/Android development, cross-platform frameworks
Backend & Infrastructure: Spring Boot, Netty, Django, React, MySQL, Google Cloud Platform

Honors & Awards

Seoul National University Academic Excellence Scholarship 2017 - 2023
Merit-based academic scholarship awarded for consistently high academic performance

Language Proficiency

Korean: Native proficiency
English: Professional working proficiency
TOEFL iBT 106 (Reading: 29, Listening: 26, Speaking: 23, Writing: 28) - November 2024