

Hongseok Oh

✉ h1oh@ucsd.edu 📞 +1 (858) 220 1410 📍 La Jolla, CA, USA
in hongseok-oh 🌐 larocaraja 🏠 larocaraja.github.io

Experienced AI Research Engineer with 3+ years of expertise in machine learning and deep learning, on speech and audio. Currently pursuing a Master's degree in Computer Science at UCSD to advance my career in AI/ML.

EDUCATION

University of California, San Diego (UCSD) | Master of Science in Computer Science **Sep. 2023 - Jun. 2025**

- GPA: 3.92/4.0, Specialization in Artificial Intelligence

Yonsei University | Bachelor of Science in Information and Industrial Engineering **Dec. 2014 - Jun. 2022**

- GPA: 3.59(3.87[†])/4.0 ([†] Last 2 Years GPA)

WORK & RESEARCH EXPERIENCE

Machine Learning Engineer Intern, Speech Models & Algorithms, Qualcomm **Jun. 2024 - Sep. 2024**

- work in the area of speech analysis, coding, enhancement and neural speech synthesis, using digital signal processing with the latest advances in machine learning, LLMs, self-supervised learning and speech modeling

AI Research Engineer, Deeply Inc. **May 2020 - Jul. 2023**

- Executed two deep learning research projects in cross-domain generalization of sound event classification systems, culminating in a publication at the 2024 IEEE ICASSP, a top-tier conference in signal processing
- Developed 10+ state-of-the-art machine learning and deep learning models using Transformer, CNN, and RNN from academic publications and scratch, leading to 4 successful demo presentations and 3 production launches
- Designed and led government-funded AI data collection projects, leading to over 600 hours of unique audio and speech dataset recorded in the wild, generating \$115k in total sales revenue

SELECTED PROJECTS

Hierarchical Token-Semantic Audio Transformer for Sound Event Detection **Oct. 2023 - Current**

- Conduct research to adapt the state-of-the-art audio spectrogram transformer (HTS-AT) for the task of sound event detection, enhancing its application and performance in recognizing the temporal activity of sounds

Audio Domain Adaptation Through Microphone Conversion [[Website](#)] **Oct. 2022 - Jul. 2023**

- Led a Generative AI research project on new augmentation techniques using CycleGAN, boosting sound models' robustness against device variability, by simulating microphones without compromising acoustic information
- Achieved the state-of-the-art performance, by a 5.2 - 11.5% increase in F1 score, culminating in an academic publication at ICASSP 2024; Integrated the novel technique into companies' deep learning training pipeline

Respiratory Sound Classification for Elderly Monitoring System **Nov. 2021 - Mar. 2023**

- Developed a Transformer-based sound event classification system for elderly health monitoring on low-resource edge devices using Transfer learning, knowledge distillation, and model quantization with Python and PyTorch
- Achieved an 80% increase in inference speed, enabling real-time analysis for over 300 elderly households; Reduced false social worker dispatches by 40%, by suppressing false alarms to enhance the system reliability

TECHNICAL SKILLS

Programming Language Python (4 years), Java (1 year), C++ (1 year), MATLAB (1 year), R (1 year)

Machine Learning PyTorch, TensorFlow, Keras, NumPy, Pandas, Matplotlib, Scikit-Learn, OpenCV, Librosa, W&B

Tools Linux, Bash, Git, SQL, GCP, \LaTeX , Docker, Spark

PUBLICATIONS

[1] **Hongseok Oh**^{*}, Myeonghoon Ryu^{*}, Suji Lee, Han Park. "Microphone Conversion: Mitigating Device Variability in Sound Event Classification", IEEE International Conference on Acoustics, Speech and Signal Processing, 2024 [[PDF](#)]

^{*}Equal contribution

PATENTS

[1] Myeonghoon Ryu, Han Park, **Hongseok Oh**, Suji Lee, "Anomaly Detection Method for Sound Classification Based on Neural Network Analysis", KR Patent No. 1026007450000, 2023-11-07, Korean Intellectual Property Office

RELEVANT COURSEWORK

Probabilistic Reason&Learning, Recommender System&Web Mining, Computer Vision I, Search and Optimization, ML: Learning Algorithms, Unsupervised Learning, Convex Optimization, Optimization in Artificial Intelligence