Hongseok Oh

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

WORK EXPERIENCES

Deeply Inc. | *AI Research Engineer (Intern: May 2020 - Oct. 2020)* May 2020 - Jul. 2023

- Designed and conducted two deep learning-based research projects in the audio domain, leading to a paper submission to ICASSP 2024 and a robustness gain against harsh acoustic environments for all subsequent products
- Developed and implemented over 10 state-of-the-art deep learning models, collaborating with multi-disciplinary teams, playing a pivotal role in our company's successful strategic shift to a B2B-focused approach
- Diagnosed and resolved persistent false alarm issues in both the elderly monitor system and the casino surveillance system, achieving a significant false positive rate reduction and the F1 score enhancement by 2.0 - 8.0%
- 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 [**GitHub**]

EDUCATION

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

- Specialization in **Artificial Intelligence**
- **Major courseworks**: Probabilistic Reason&Learning, Computer Vision I, Recommender System&Web Mining

University of California, San Diego | *Education Abroad Reciprocal Exchange Program* Dec. 2018 - Jun. 2019

- **GPA**: 3.57/4.0
- **Major courseworks**: Data Science in Practice, Intro/Computer SCI: JAVA(1)

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

- **GPA**: 3.59(3.87†)/4.0 († Last 2 Years GPA)
- **Major courseworks**: Optimization in Artificial Intelligence, Probabilistic Model in OR, Advanced Programming

SELECTED PROJECTS

Audio Domain Adaptation Through Microphone Conversion Oct. 2022 - Jul. 2023

- **Technologies**: Generative AI, CycleGAN, ResNet50, data augmentation, domain adaptation, Python, PyTorch
- **Description**: Led a research initiative to design a new augmentation technique, improving sound event classifiers' resilience against device variability by simulating microphones without compromising acoustic information
- **Achievement:** Submitted our groundbreaking research results to a peer-review conference ICASSP 2024, outperforming the state-of-the-art performance by a 5.2 - 11.5% improvement in F1 score

Respiratory Sound Classification for Elderly Monitoring System [Demo] Nov. 2021 - Mar. 2023

- **Technologies**: Transfer learning, knowledge distillation, model quantization, Transformer, Python, PyTorch
- **Description**: Developed a sound event classification system for elderly health monitoring on resource-constrained edge devices; quantified and pinpointed the sources of false alarms to enhance system reliability
- **Achievement**: Enhanced safety for 300+ elderly individuals, aiding social workers in timely care provision; achieved an 80% acceleration in inference speed while marginally sacrificing its performance

PUBLICATIONS

Hongseok Oh*, Myeonghoon Ryu*, Suji Lee, Han Park. "MICROPHONE CONVERSION: MITIGATING DEVICE VARIABILITY IN SOUND EVENT CLASSIFICATION", in *Proc. ICASSP*, 2024 (Under review)

PATENTS

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

SKILLS

Technical	• Python, Java, C++, PyTorch, TensorFlow, Keras, Linux, Bash, Git, SQL, GCP, LaTeX, Docker, R
Language	• **Korean**: Native | **English**: Full Professional Proficiency | **Spanish**: Conversational
Interest	• CrossFit (Competed in 5 Team Competitions), Bouldering (V4), Scuba Diving (PADI Advanced)