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.

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

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 over 10 state-of-the-art machine learning and 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, enhancing operating efficiency and system reliability by reducing false positive rate by 20%
- 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

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   Nov. 2021 - Mar. 2023

- **Technologies**: Transformer, Transfer learning, knowledge distillation, model quantization, 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 the system reliability
- **Achievement**: Achieved 80% inference speed acceleration enabling real-time inference for 300+ elderly-only households; Reduced false dispatch rate of social workers by 40% boosting the quality of social home care

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

Programming	• Python (4 years), Java (6 months), C++ (6 months), MATLAB (1 year), R (1 year)
Tools	• PyTorch, TensorFlow, Keras, Scikit-Learn, OpenCV, Linux, Bash, Git, SQL, GCP, LaTeX, Docker
Language	• **Korean**: Native | **English**: Full Professional Proficiency | **Spanish**: Conversational