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 and Engineering at UCSD to advance my career in AI/ML.

WORK EXPERIENCES

Deeply Inc. May 2020 - Jul. 2023
AI Research Engineer (Intern: May 2020 - Oct. 2020) Seoul, Republic of Korea

- Conducted two deep learning-based research projects in the audio domain, leading to a paper submission to ICASSP 2024 and a robustness gain against noise and reverberation of at least 47.5% for all subsequent products
- Developed and evaluated over 10 deep learning models, resulting in 3 service launches and 4 demos, playing a pivotal role in our company's successful strategic shift from the B2C market segment to a B2B-focused approach
- Maintained and fine-tuned an elderly monitor system and casino surveillance system, reducing false positive rate to 0.1 - 1.0% while enhancing F1 score by 2.0 - 8.0%; which directly translated to reduced false alarms for monitors
- Designed and led government-funded AI data collection projects, generating $115k in total sales revenue [**GitHub**]

EDUCATION

University of California, San Diego Sep. 2023 - Jun. 2025 (Expected)
Master of Science in Computer Science and Engineering San Diego, CA, United States

- **Concentration**: Artificial Intelligence
- **Major courseworks**: Probabilistic Reason&Learning, Computational Robust Statistics, Rec Sys&Web Mining

University of California, San Diego Dec. 2018 - Jun. 2019
Education Abroad Reciprocal Exchange Program San Diego, CA, United States

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

Yonsei University (Korean Ivy League School) Mar. 2014 - Feb. 2022
Bachelor of Science in Information and Industrial Engineering Seoul, Republic of Korea

- **GPA**: 3.59(3.87†)/4.0 (†Last 2 Years GPA)
- **Major courseworks**: Optimization in Artificial Intelligence, Advanced Programming, Industrial Data Management

SELECTED PROJECTS

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

I led a research initiative exploring a new augmentation technique with ResNet-50 and CycleGAN to enhance sound event classifiers' resilience against device variability. By simulating microphone properties without compromising inherent acoustic information, we achieved promising results. This work, now submitted to ICASSP 2024, has shown performance gains that outpace the current state-of-the-art, showcasing a 5.2 - 11.5% improvement in F1 score.

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

I developed a sound event classification system specifically for elderly health monitoring, harnessing a pre-trained Audio Spectrogram Transformer and the knowledge distillation technique. This innovative approach dramatically accelerated the inference speed by 80%, enabling real-time monitoring. As a result, the safety and well-being of over 300 elderly individuals were enhanced, aiding social workers in providing timely and due care to the elderlies.

SKILLS

Technical
- Python
  - Deep learning framework: PyTorch, TensorFlow, Keras
  - Digital signal processing & Image processing: Torchaudio, Torchvision, Librosa
- Linux, Git, SQL, GCP

Language
- **Korean**: Native | **English**: Fluent | **Spanish**: Conversational

Interest
- CrossFit (Competed in 5 Team Competitions), Bouldering (V4), Scuba Diving (PADI Advanced)