JEONGEUN(JE) LEE

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INTRODUCTION

3 years of industry experience in Machine Learning engineering and research, specializing in Deep Neural Networks, Computer Vision, and Deep Learning Algorithms. Skilled in applying and optimizing ML models with a focus on GPU Performance, Image Processing, and Data Analytics. Proficient in Python, C, Linux, and frameworks like PyTorch and TensorFlow. Led projects with a team of 10 engineers at a high-growth startup. I'm passionate about collaborating with others, implementing machine learning solutions, and designing high-performance systems for real-world applications

EDUCATION

University of California San Diego, San Diego, USA **Sep 2024 – (expected June 2026)**

Master of Science in Computer Science and Engineering

- Student Researcher, Professor Pengtao Xie's Lab (Sep 2024 - present): Conducting research on applying the Multi-Level Optimization techniques in Masked AutoEncoders on biological datasets.

Chung-Ang University (CAU), Seoul, Korea **Mar 2018 – Aug 2022**

Bachelor of Science in Computer Science and Engineering ***GPA: 3.8/4.5***

- Student Researcher, Systems and Storage Laboratory (Dec 2018 – Dec 2019): Conducted research on EXT4 file system to improve file defragmentation efficiency using multi-threading; published papers and a patent
- Vice President, CLUG (CAU Linuxer & Unixer Group, Sep 2018 – Sep 2019): Organized mentoring courses and hackathon events. 2 years of Linux mentoring through a face recognition project with Raspberry Pi

PROFESSIONAL EXPERIENCE

AI Algorithm Task Team, Uniquify Inc. Santa Clara, CA, USA **Feb 2021 – Jul 2024**

AI Engineer (Mar 2022 – Jul 2024)

- **Technology Adaptation**: Improved ResNet50 training method using Mirrored Strategy to enable synchronous distributed training across multiple GPUs on a single machine; a 2.11x speed improvement with 3 RTX 2080 GPUs
- **Analytical Advancement**: Proposed evaluation methods for neural network models using Explainable AI (XAI), CAM, for thorough analysis; achieved an average 15% improvement in accuracy for defect detection project
- **Algorithm Enhancement**: Optimized backend computations of deep neural network models instead of utilizing external frameworks, enhancing operations of Pooling, Batch Normalization, and Convolution layers using Toeplitz matrices and fusion methods; achieved up to a 13x speed improvement over the initial measure
- **Project Management**: Led a team of 10 to develop an efficient image processing pipeline using Adaptive Gamma Correction, Contrast-Limited Adaptive Histogram Equalization, Unsharp Masking, and Gaussian Filter; increased YOLOv8 mAP from <10% to 76%, showing significant improvement especially for dark images

AI Intern (Feb 2021 – Mar 2022)

- **Algorithm Customization**: Implemented an in-house HNSW, the Approximate Nearest Neighbors (ANN) search methods, with a focus on language consistency, scalability, and ease of debugging to enhance control of the search tool; achieved 1.2x higher accuracy on the dataset compared to other open-source methods (ANNOY, NMSLIB)
- **Process Optimization**: Led a project to optimize a tool for decomposing neural network models and extracting details for the hardware team, including a user-friendly UI that decreases manual work by 4+ hours weekly
- **Technical Expertise**: Gained hands-on experience through various projects with end-to-end models, including YOLO, ResNet, and GAN with their respective versions, implemented in TensorFlow/PyTorch

Irvine Tech Hub, Irvine, CA, USA **Jan 2021 – Feb 2021**

AI Engineering Intern

- **Model Optimization**: Developed an attention gauge system using RetinaNet to detect facial angles and eye types; Improved mAP up to 51% using discriminative layer training, learning rate finder and data augmentation
- **Collaborative Execution**: Led a team of 5, encouraging collaboration, project planning, and problem solving; recognized as one of the top five among 30 participants in the internship/program

TECHNICAL SKILLS

- **Machine Learning:** *Computer Vision (Object Detection Classification) NumPy · TensorFlow · PyTorch · SciPy*
- **Software Engineering:** *Python · C · Linux · Unix Shell · Git · Conda · Jupyter Notebook*

ACHIEVEMENTS & PUBLICATIONS

- Excellence Award, 2019 SW TECH-FAIR, OpenSource CLUG Hackathon, Chung-Ang University, Seoul, Korea: Developed a music application that customizes recommendations according to users' facial expressions
- Second author of a paper by writing the initial draft and producing the figures: "An Efficient and Parallel File Defragmentation Scheme for Flash-based SSDs" in 36th ACM/SIGAPP Symposium on Applied Computing