

JEONGEUN(JE) LEE

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EDUCATION

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| University of California San Diego, San Diego, USA <i>Master of Science in Computer Science and Engineering (Robotics / AI focus)</i> | Expected Mar 2026 GPA: 3.9/4.0 |
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TECHNICAL SKILLS

- **Core Skills:** Localization & Mapping (SLAM) · Path planning · Kalman / state estimation · Real-robot deployment · Computer Vision (detection, classification, OCR) · Multimodal foundation models · LLM applications
- **Software Engineering:** ROS2 · Python · C · C++ · Linux · Unix Shell · Git · Conda · Docker

RESEARCH EXPERIENCE

University of California San Diego, USA

- **Autonomous Vehicle Lab, Student Researcher** Oct 2025 – Present
 - Research project for coordinated aerial–ground search-and-rescue in unknown environments using an autonomous golf cart + drone; integrating vision, global planning, and closed-loop control in ROS2.
- **Color Cube tracking with Robot Arm, Co-op (Henrik I Christensen and Qualcomm)** Feb 2025 – May 2025
 - ROS 2 + DDS + YOLO on Qualcomm RB3: built color-cube detection and DofBot control with a language-to-action layer translating text prompts into autonomous pick-and-place.
- **Professor Pengtao Xie's Lab, Student Researcher** Sep 2024 – Mar 2025
 - Built an LLM-based biosequence analysis stack by combining DNABERT with ProteinChat (protein transformer ESM + Llama LLM); explored embedding pooling and cross-modal fusion.

Chung-Ang University, Seoul, Korea

Dec 2018 – Dec 2019

- **Systems and Storage Lab, Student Researcher** : Optimized EXT4 defragmentation with multi-threading; co-authored papers and filed a [patent](#) on flash-based SSD defragmentation.

PROFESSIONAL EXPERIENCE

Brain Corp Inc, San Diego, CA, USA

Jun 2025 – Sep 2025

AI Intern, Applied ML

- Led design and POC of an LLM-powered pre-review agent for scan-robot price-tag QA, achieving $12.86\times$ faster processing and $12.57\times$ lower cost/image; applied systematic prompt strategies, identified industrial LLM limits on noisy retail imagery, and integrated PaddleOCR for robust text extraction.
- Built a hybrid LLM-CNN pipeline to improve on-robot perception reliability for price-tag reads; boosted downstream QA accuracy and latency on edge-captured frames from the scanning platform.

Uniquify Inc, Santa Clara, CA, USA

Feb 2021 – Jul 2024

AI Engineer, AI Algorithm Task Team | Mar 2022 – Jul 2024

- Improved ResNet50 training method by using Mirrored Strategy to enable synchronous distributed training across multiple GPUs on a single machine; achieved a $> 2x$ speed up with 3 RTX 2080 GPUs compared with single GPU
- Proposed evaluation methods for neural network models using Explainable AI (XAI), Class Activation Mapping (CAM), for thorough analysis; achieved an average 15% improvement in accuracy for defect detection project
- Led a team of 10 in an agile process 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% in transformed MS COCO dataset; significant improvements for dark images

AI Intern, AI Algorithm Task Team | Feb 2021 – Mar 2022

- Implemented in-house HNSW ANN search with clean APIs and scalable memory controls, achieving $1.2\times$ higher accuracy vs. ANNOY/NMSLIB on internal data.
- Automated model-decomposition tooling for hardware handoff (layer ops, tensor shapes), reducing weekly manual effort by 4+ hours for researchers.

Irvine Tech Hub, Irvine, CA, USA

Jan 2021 – Feb 2021

AI Engineering Intern

- Built an “attention gauge” (RetinaNet) to detect facial angles/eye types; improved mAP to 51% on limited data using discriminative layer training, LR finder, and heavy augmentation.

ACHIEVEMENTS & PUBLICATIONS

- Second author, “[Towards LLM-Centric Multimodal Fusion: A Survey on Integration Strategies and Techniques](#)” a survey of 125 MLLMs covering integration architecture/levels, representation learning, and training paradigms