

# EVELYN N. KIM

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## 1 EDUCATION

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- University of California, Los Angeles (UCLA)** CA, US  
Ph.D. in Computer Science, Advisor: Prof. Khalid Jawed and Prof. Wei Wang 2025 - Present
- University of California, Los Angeles (UCLA)** CA, US  
M.S. in Mechanical Engineering, Advisor: Prof. Khalid Jawed 2023 - 2024
- Seoul National University** South Korea  
B.S. in Mechanical Engineering and B.B.A. in Entrepreneurship 2018 - 2023

## 2 RESEARCH EXPERIENCE

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**Autonomous Multimodal Perception and Mapping in Large-Scale Agricultural Environments** CA, US  
*Ph.D. Student, Structures-Computer Interaction Lab* 2025 - Present

Advisor: Prof. Khalid Jawed and Dr. Jungseock Joo, UCLA

- ◇ Lead the development of an autonomous mobile robotic system with multimodal sensing (RGB, depth, LiDAR, GPS) for large-scale agricultural data collection and mapping.
- ◇ Design and implement SLAM and open-vocabulary semantic mapping pipelines for building kilometer-scale, queryable 3D maps in real-world farm environments.
- ◇ Drive real-world system deployment and field data collection in farms in Fargo, ND and Oxnard, CA, addressing challenges including GNSS degradation, repeated crop structures, and long-horizon traversal.
- ◇ Build an end-to-end research platform supporting downstream tasks such as autonomous data collection, navigation, 3D reconstruction, and semantic querying.
- ◇ Introduce AgriSC, a benchmark for evaluating semantic consistency in large-scale agricultural environments, highlighting failure modes of existing methods under repetitive structures and limited viewpoints.
- ◇ Formulate semantic inconsistency in narrow, highly repetitive agricultural settings, where limited viewpoints and structural ambiguity make representation learning and mapping especially failure-prone.
- In preparation for submission to IEEE RA-L

**Adaptive Image Composition of two Diffusion Models** South Korea  
*Research Engineer, CONNECTEVE Inc.* 2024 - 2025

Advisor: Prof. Duhyun Ro, Seoul National University

- ◇ Develop a framework for composite image generation to address data scarcity in medical X-ray datasets.
- ◇ Introduce a novel framework that jointly denoises two DDPM models with a resampling mechanism to generate realistic and semantically consistent composite images with improved object-background coherence.
- Unpublished manuscript

**Self-Supervised Viewpoint Selector for Neural Radiance Fields (NeRF)** CA, US  
*M.S. Student, Structures-Computer Interaction Lab* 2023 - 2024

Advisor: Prof. Khalid Jawed, UCLA

- ◇ Improve NeRF training efficiency by introducing Self-supervised NeRF Image Selection (SNIS), a novel strategy for selecting optimal camera viewpoints.
- ◇ Propose a pseudo-label formulation analogous to a reinforcement learning reward, enabling self-supervised optimization of NeRF training.
- ◇ Integrate NeRF training with Unity-based camera control, establishing a scalable pipeline for viewpoint optimization and data collection.
- Master's Thesis, UCLA, 2024

**Visual Positioning System (VPS) with Machine Learning** South Korea  
*Research Engineer, VR Crew Inc.* 2023

- ◇ Develop a visual positioning system (VPS) for a VR application, estimating user location using mobile devices.
- ◇ Design a multimodal localization pipeline integrating LiDAR, point cloud processing, deep visual features, and geometric methods (epipolar geometry, homography).
- ◇ Lead research on key modules including keypoint extraction, point matching, PnP/PnL, and global descriptor learning.
- Patent, 2023

## Knowledge Distillation with Network Inversion, Domain Adaptation

South Korea

*Research Intern, Korea Institute of Science and Technology (KIST)*

2021 - 2022

Advisor: Prof. Suhyun Kim, KIST Data Science Team

- ◇ Propose a performance restoration method for pruned networks using knowledge distillation with synthetic data generated via network inversion.
- ◇ Identify a limitation of one-hot labels in inversion-generated datasets and introduce a vector-form label representation to improve training performance.
- ◇ Investigate domain shrinkage effects during pruning and apply domain adaptation to improve sub-network performance, particularly in Batch Normalization layers.
- Bachelor's Thesis, Seoul National University, 2022

## Optical Character Recognition (OCR)

South Korea

*Research Intern, Saige Research Inc.*

2021

Advisor: Prof. Frank Park, Seoul National University

- ◇ Develop and customize OCR models to automate manufacturing processes.
- ◇ Build bilingual (Korean–English) OCR pipelines, including dataset generation, document understanding, character detection, and recognition.

## 3 PUBLICATIONS & PATENT

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- ◇ **Kim, E.**, Lien, T., Philip, J., Joo, J., Jawed, M. K. (2026). “AgriSC: A Benchmark for Semantic Consistency in Large-Scale Agricultural Environments.” Manuscript in preparation for submission to IEEE RA-L.
- ◇ **Kim, E.** (2024). “Advancing Neural Radiance Fields through Self-Supervised NeRF Image Selector (SNIS).” Master’s Thesis, University of California, Los Angeles.
- ◇ Jung, Y., Choi, S., **Kim, N.** (2023). “Apparatus and method for performing visual localization effectively.” Korean Patent No. 10-2023-0054544, filed April 26, 2023, issued December 18, 2023.
- ◇ **Kim, N.** (2022). “Data-Free Class-Specific Pruning.” Bachelor’s Thesis, Seoul National University.

## 4 ADDITIONAL TECHNICAL EXPERIENCE

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### 3D Mouse: Spatial Information Inputs

2021

- ◇ Design and prototype a 3D input device using inertial and ultrasonic sensors for spatial interaction.
- ◇ Awarded 3rd place at the 10th Creative Engineering Design Fair (Seoul National University).

### Software Engineer, Datacrunch Global Inc.

2023

- ◇ Develop a data-driven B2B platform for logistics analytics, tracking inventory flows and user behavior.
- ◇ Manage scalable APIs using Python (Django) with frontend integration (React) and database systems (MySQL).

### Software Engineering Intern, PSX Inc.

2020

- ◇ Develop frontend and backend systems for a stock trading platform website and a hybrid mobile application using Python (Django) and React Native.
- ◇ Design a recommendation algorithm for an OTT media service to provide personalized content suggestions.

## 5 SKILLS

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**Programming Languages:** Python, C/C++, SQL, React, Bash, R, NodeJS

**Technologies and Frameworks:** PyTorch, ROS2, Huggingface, Tensorflow, Docker, OpenCV, Pandas, Git