

Minji Lee

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Education

PURDUE UNIVERSITY

Ph.D. in Technology, Vision Transformer

Dissertation: CedarSAM: Enhancing Instance Segmentation for Classification of Eastern Red Cedar Trees from UAV

Imagery

West Lafayette, IN

May 2021 – August 2025

PURDUE UNIVERSITY

M.S. in Computer and Information Technology, Multi-Agent Robotics

Thesis: Intelligent Self-Adapting Robot Apparel to Adapt Comfort

West Lafayette, IN

August 2019 – May 2021

SEJONG UNIVERSITY

B.F.A. and B.S. in Computer Science and Design

Seoul, South Korea

March 2012 – February 2017

PURDUE UNIVERSITY

Visiting Scholar, Image Processing and Data Analytics

West Lafayette, IN

June 2016 – August 2016

Experience

PURDUE UNIVERSITY

Research Assistant in M2M Lab - Team Leader

- Fine-tuned SAM model with CLIP-based text prompts for multimodal semantic segmentation

- Compared baseline and CLIP-enhanced models in terms of segmentation accuracy and inference latency

West Lafayette, IN

May 2025 – August 2025

PURDUE UNIVERSITY

Teaching Assistant for C Programming

- Taught advanced C programming, covering algorithm design, memory management, and time complexity

- Led interactive lab sessions with live coding demonstrations and real-world applications, enabling students to debug complex recursive functions and optimize algorithm efficiency

West Lafayette, IN

August 2024 – May 2025

PURDUE UNIVERSITY

Research Assistant in M2M Lab

- Developed a generative facial model using COCO dataset with MAE and Patch n' Pack

- Built real-time prompt interfaces to control facial attributes programmatically, enabling developer-defined transitions like eye repositioning via mouse input

West Lafayette, IN

September 2023 – May 2024

LG INNOTEK

Research Aide Intern in AI Big Data Solution

- Engineered a hybrid model incorporating CNN architectures to assess transition from sequential to parallel processing in manufacturing workflows

- Benchmarked and optimized a real-time monitoring system on Amazon EC2, improving resource utilization and parallel operation tracking for greater system efficiency

Seoul, South Korea

June 2023 – August 2023

ARGONNE NATIONAL LABORATORY

Research Aide Intern in Software Development and Robotics

- Designed and deployed Ansible scripts for ML environment automation on NVIDIA Jetson Nano, eliminating manual library installation and reducing system setup time by 12%

- Developed white papers and visual materials to guide beginners in deploying and managing edge-to-cloud pipelines scalability for SAGE Project

Lemont, IL

May 2022 – August 2022

ARGONNE NATIONAL LABORATORY

Research Aide Intern in Software Development

- Integrated Node-RED into IBM platform, leveraging Docker to streamline edge-to-cloud pipeline deployment

Lemont, IL (Virtual)

May 2021 – August 2021

- Implemented edge AI for real-time sensor fusion in a distributed computing system, enabling efficient environmental monitoring and automated anomaly detection accuracy by 15%

PURDUE UNIVERSITY

Research Advisor in M2M Lab

West Lafayette, IN (Hybrid)

August 2019 – May 2021

- Advised international students on navigating research projects and career paths, offering guidance on academic planning, research methodologies, and professional development
- Provided hands-on instruction in data analysis techniques, equipping students with skills to process and interpret unstructured tensor data

Invited Keynotes and Presentations

PURDUE UNIVERSITY

Graduate Women in Business Session of AI and Deep Learning

West Lafayette, IN

October 2024

- Presented AI-driven analytics tools, including NLP-based decision making and predictive analytics

PURDUE UNIVERSITY

Military Research Institute Workshop of Machine Learning Application

West Lafayette, IN

June 2024

- Lectured on applying confusion matrix in U.S. military-based systems to refine classification accuracy

MINISTRY OF SCIENCE AND ICT - MSIT

Information and Communication Technology Career Talk

Seoul, South Korea

December 2023

- Partnered with mentors from the Korean Government AI R&D Center to teach and mentor undergraduate students

Publications

- **Political Compass Evaluation of ChatGPT: Assessing Consistency Bias in Generated Responses**
Presented at the IEEE 9th International Conference on Mathematics and Computers in Sciences and Industry (MCSI), 2024 | Coauthors: Eric T. Matson
- **Deploying a Sustainable Deep Learning Pipeline for Poison Ivy Image Classification**
Presented at the IEEE First International Conference on Artificial Intelligence for Medicine, Health, and Care (AIMHC), 2024 | Coauthors: Wonjun Park, Sumin Cho, Subin Kim, Jiyeon Lee, Jack Mahedy, and Nebey Gebresalssie
- **Prediction-Based Auto-Pilot Interface for Drone-to-Object Chasing Using Historical TSPI Data**
Presented at the 2023 23rd International Conference on Control, Automation, and Systems (ICCAS) | Coauthors: Shinhyoung Jang, Byeonghwi Park, Juheon Jeong, Jack Mahedy, Nebey Gebreslassie, and Eric T. Matson
- **Safe Route Recommendation Based on Crime Risk Prediction Using Urban and Crime Data**
Presented at the IEEE 9th International Conference on Big Data Computing Service and Applications, 2023 | Coauthors: Daye Kim, Juwon Baek, Jihu Yang, Hyun Roh, Heewon Jeong, Bryanna Ruiz, and Eric T. Matson
- **EHDNet: Enhanced Human Detection Network for Search and Rescue**
Presented at the 2022 IEEE 46th Annual Computers, Software, and Applications Conference (COMPSAC) | Coauthors: Seungoh Han, Ah-Young Nho, Wei Teng Kwan, Benjamin Paglia, Jacob Visniski, Eric T. Matson, and Minsun Lee
- **Feasibility of Measuring Shot Group Using LoRa Technology and YOLO V5**
Presented at the 2022 IEEE Sensors Applications Symposium (SAS) | Coauthors: Sanghyun Park, Dongheon Lee, Jisoo Choi, Dohyeon Ko, Zack Murphy, Nowf Binhowidy, and Anthony Smith
- **Cost-Effective Solution for Fallen Tree Recognition Using YOLOX Object Detection**
Presented at the 2022 Sixth IEEE International Conference on Robotic Computing (IRC) | Coauthors: Hearim Moon, Eunsik Park, Junghyun Moon, Juyeong Lee, Doyoon Kim, Minsun Lee, and Eric T. Matson

Skills & Interests

Programming: Python3, C, bash scripting

Frameworks and Libraries: NumPy, PyTorch

Mathematics: Calculus, linear algebra, probability, statistics, principal component analysis, hyperparameter tuning

Certifications: The Recreational UAS Safety Test (TRUST, 2024), Neural Networks and Deep Learning (Coursera, 2024), EBEC Programming in Python (Purdue, 2022)

Language: Korean, English, Japanese