Minji Lee

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Education

PURDUE UNIVERSITY West Lafayette, IN
Ph.D. in Technology, Semantic Segmentation in Computer Vision May 2021 – May 2025
Thesis: UAV-Based Segmentation of Eastern Red Cedar Using a Custom Vision Transformer Model in MLOps

PURDUE UNIVERSITY West Lafayette, IN
M.S. in Computer and Information Technology, Multi-Agent Robotics August 2019 – May 2021
Thesis: Intelligent Self-Adapting Robot Apparel to Adapt Comfort

SEJONG UNIVERSITY Seoul, South Korea
B.F.A. and B.S. in Computer Science and Design March 2012 – February 2017

PURDUE UNIVERSITY West Lafayette, IN
Visiting scholar, Image Processing and Data Analytics June 2016 – August 2016

Experience

PURDUE UNIVERSITY West Lafayette, IN
Teaching Assistant for C Programming August 2024 – Present
- Taught advanced C programming, covering algorithm design, memory management, and time complexity to facilitate problem-solving skills
- Led interactive lab sessions with live coding demonstrations and real-world applications, enabling students to debug complex recursive functions and optimize algorithm efficiency

PURDUE UNIVERSITY West Lafayette, IN
Research Assistant in M2M Lab September 2023 – May 2024
- Developed a generative facial model utilizing COCO datasets and trained a diffusion transformer models with Patch n' Pack for high-resolution human image generation
- Built an interactive generative application which modifies facial attributes in real time based on user input, providing dynamic adjustments such as eye position transitions through mouse prompts

LG INNOTEK Seoul, South Korea
Research Aide Intern in AI Big Data Solution June 2023 – August 2023
- 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 using YOLOv8 object detection on Amazon EC2, improving resource utilization and parallel operation tracking for greater system efficiency
- Applied Kullback–Leibler divergence to minimize discrepancies between process and operational data, ensuring greater model alignment

ARGONNE NATIONAL LABORATORY Lemont, IL
Research Aide Intern in Software Development and Robotics May 2022 – August 2022
- 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

ARGONNE NATIONAL LABORATORY Lemont, IL (Virtual)
Research Aide Intern in Software Development May 2021 – August 2021
- Integrated Node-RED into IBM platform, leveraging Docker to streamline edge-to-cloud pipeline deployment
- 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 West Lafayette, IN (Hybrid)
Research Advisor in M2M Lab 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 West Lafayette, IN
Graduate Women in Business Session of AI and Deep Learning October 2024

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

PURDUE UNIVERSITY West Lafayette, IN
Military Research Institute Workshop of Machine Learning Application June 2024

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

MINISTRY OF SCIENCE AND ICT - MSIT Seoul, South Korea
Information and Communication Technology Career Talk 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, tensorRT
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