Yunze (Lulu) Wei

647-987-1726
lulu.wei@mail.utoronto.ca

EDUCATION

Bachelor of Applied Science & Engineering, University of Toronto (U of T) 2020 – 2025 (Expected)
Major in Engineering Science – Machine Intelligence + PEY Co-op
Minor in Engineering Business

- CGPA 3.69/4.00

RELEVANT COURSES

CSC420 Introduction to Image Understanding
ROB311 Artificial Intelligence
ECE368 Probabilistic Reasoning
ECE353 Systems Software
ECE286 Probability and Statistics
ECE324 Machine Intelligence, Software & Neural Networks
CSC401 Natural Language Processing
ECE421 Introduction to Machine Learning
CSC317 Computer Graphics

AWARDS

Best AI Hack, GenAI Genesis 2024 Mar 2024
Dean's Honour List 2020 Fall, 2021 Fall – 2023 Winter
Transdisciplinary Engineering Education & Practice Best Podium, UnERD Aug 2022

RESEARCH EXPERIENCE

Undergraduate Research Student, Toronto Intelligent Systems Lab Jan 2024 – Current
Research on video representations for human-robot imitation learning. Supervised by Prof. Igor Gilitschenski

- Currently conducting undergraduate thesis research on learning video representations to allow robot one-shot task imitation by observing human demonstrations

***Research on morphology-conditioned dexterous robotic grasping*.** Supervised by Prof. Igor Gilitschenski

- Proposed a new architecture for cross-embodiment robotic grasping that increases out-of-domain success rate on unseen grippers by over 9% compared to baseline
- Leveraged Graph Convolutional Networks and transformer attention to learn latent embeddings for 3D point clouds and end-effector morphology to improve generalization

Research Assistant, Institute for Studies in Transdisciplinary Engineering Education May - Aug 2022
Research on learning effectiveness in hybrid instruction modes. Supervised by Dr. Qin Liu and Prof. Greg Evans

- Conducted quantitative descriptive and inferential data analysis from survey data of ~250 students in Excel and SPSS to identify contextual factors that contribute to learning effectiveness and efficiency
- Facilitated student focus group interviews and analyzed transcripts using thematic analysis
- Utilized statistical concepts such as tests of significance and factor analysis to articulate findings

PUBLICATIONS

Y.Wei, M. Attarian, and I. Gilitschenski, "GeoMatch++: Morphology Conditioned Geometry Matching for Multi-Embodiment Grasping," in *CoRL Workshop on Learning Robot Fine and Dexterous Manipulation: Perception and Control*, 2024.

Q. Liu, G. Evans, **Y. Wei**, M. Moghaddas, K. Mistry, and T. Kecman, "Engineering Students' Perceptions of Learning Effectiveness: Implications from the Lived Experiences Amidst a Mixture of In-Person and Online Instruction," in *Proceedings of the American Society for Engineering Annual Conference & Exposition*, Baltimore, MD, 2023. Available: https://peer.asee.org/43349

PRESENTATION

"What Contextual Factors Influenced Learning Effectiveness and Efficiency? Perceptions of Engineering Students During the Pandemic," Undergraduate Engineering Research Day (UnERD) 2022, Aug. 2022.

WORK EXPERIENCE

Digital Analytics Co-op Student, Manulife Canada May 2023 – May 2024

- Enabled self-serve reporting capabilities to key stakeholders by innovating analytics dashboards and customizing data visualizations using DOMO and Adobe Analytics
- Created new customized dashboards for site launches to enable analytics on campaigns and KPIs
- Analyzed and interpreted data to provide insights against KPIs for stakeholders
- Created navigation menus of 80+ dashboards using HTML/JavaScript/CSS, improving experience for 300+ users

ENGINEERING PROJECTS

Perch, GenAI Genesis 2024 Hackathon Mar 2024

- Built a website that generates customized notes in audio, text, and flashcard formats from a lecture transcript or audio recording, addressing SDGs 4 (Quality Education) and 10 (Reduced Inequalities)
- Leveraged Google Gemini API to implement features for transcript cleanup, notes summarization, translation, and flashcard generation
- Won Best AI Hack award

AI-Generated Art Detection Project Lead, TMI, U of T Oct 2023 – Apr 2024

- Trained an image classification model in Pytorch that detects AI-generated vs. human drawn art
- Led a team of seven AI beginners and created plan for data processing, model building, and frontend development
- Implemented pipeline to generate image captions using BLIP2 model and generate images with Stable Diffusion
- Created a website for users to try the model using Streamlit

MaskAway, ECE324, U of T Jan – Apr 2023

- Developed transformer-based model using Pytorch that inpaints facial regions for photos of people wearing masks in a team of three
- Built data processing pipeline by detecting face region and creating image masks for training data
- Finetuned model on curated datasets of two celebrities to improve likeliness to any single individual

Observational Fairness Mini-Project, ECE324, U of T Jan – Apr 2023

- Implemented a modified GAN architecture to predict recidivism using the COMPAS dataset
- Used a SVM when creating training batches to prevent mode collapse

PLATO: Plastic Locator and Tracker Object, **Praxis III, U of T** Jan - Apr 2022

- Designed and developed a final functional high-fidelity GPS tracker prototype in a team of six
- Demonstrated interdisciplinary teamwork skills by collaborating with a business team on a global engineering design project based in Ghana
- Responsible for product planning and pitching: researched stakeholder needs and created pitch brochure
- Built and programmed circuits with sensors and motor using Raspberry Pi and MicroPython

SKILLS

Programming: Python, C, C++, Java, JavaScript, Verilog, Pytorch, JAX, NumPy, Matplotlib, Pandas, MATLAB, Scikit-learn, Git, Linux
Software: IsaacGym, Excel, SPSS, DOMO, Adobe Analytics, Decibel
Technical: Computer vision, robotics, transformers, CNN, data processing, data visualization
Professional: Research and synthesis, critical thinking, communication, project management, problem-solving
Languages: English (native), Mandarin (fluent), French (advanced), Japanese (intermediate)