Joseph Kawiecki

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EDUCATION

Purdue University – West Lafayette, IN **December 2023**
Master of Science: Computer Engineering *GPA: 3.8/4.0*

Purdue University – West Lafayette, IN **December 2022**
Bachelor of Science: Computer Engineering *GPA: 3.8/4.0*

PROFESSIONAL EXPERIENCE

Purdue University College of Engineering – West Lafayette, IN **June 2023 – Present**
ECE Graduate Teaching Assistant

- Leading 10+ undergraduate students to develop an educational web application made with CherryPy and React
- Provided online breadboard, Verilog, and real FPGA build-interaction to 300+ students with less than 10ms delay

Cognitive Robot Autonomy and Learning Lab – West Lafayette, IN **January 2023 – Present**
Graduate Research Assistant

- Constructing universal robot movement policies given a reference motion with deep reinforcement learning (RL)
- Assembled an RL-based model to teach simulated dual UR5e arms to lift a chair within PyBullet

Blue Origin – Kent, WA **May 2022 – August 2022**
Software Engineer Intern

- Collaborated on an Agile structured team to improve the backend of a manufacturing web application supporting 5,000+ users
- Built and unit-tested an application programming interface (API) uploading file data to manufacturing work plans
- Presented said API tool to superiors resulting in a 20x speed upgrade

Textron – Muskegon, MI **May 2021 – August 2021**
Automation Engineer Intern

- Utilized programmable logic controllers (PLC) with industrial sensor systems to automate plant machinery
- Installed and programmed a laser profiler to scan parts and reduce variance in measurement by 400%

PROJECT EXPERIENCE

Conditional Generative Adversarial Networks – West Lafayette, IN **February 2023 – April 2023**
Personal Project

- Recreated network detailed in *Conditional Generative Adversarial Nets* (cGAN) from scratch with MNIST dataset
- Evaluated generator output images with Fréchet Inception Distance (FID) resulting in quality within 5% of original

CodeSLAM – West Lafayette, IN **August 2022 – December 2022**
Personal Project

- Implemented a paper detailing efficient, 3D representation of geometry for SLAM perception systems
- Leveraged PyTorch to enhance depth prediction accuracy of the variational autoencoder (VAE) model by 5x

CAMPUS INVOLVEMENT

Boiler Robotics – West Lafayette, IN **September 2020 – Present**
President, Member

- Produce vision and obstacle detection software to run on an Nvidia Jetson TX2 with ROS2 and CUDA
- Led a collaborative environment of 30+ students managing weekly meetings, project timelines, and an $18,000 budget to compete in Mars Society's University Rover Challenge (URC)
- Developed an autonomous Mars rover capable of life detection, equipment servicing, terrain traversal, and more

RELEVANT SKILLS

- C, C++, Python, Java, JavaScript, Linux, PyTorch, TensorFlow, CUDA, ROS, OpenCV, GPU, PyBullet, CNNs, GANs, RL, SLAM, Keras, ONNX, Git, Docker, REST API, Agile, Scrum, Autonomous Vehicles (AVs), CARLA

HONORS / AWARDS

- IBM Watson Scholarship **August 2022**
- Charles W. Brown ECE Scholarship **July 2022**