# Joseph Kawiecki

(708)-308-4324 | josephkawiecki@gmail.com | linkedin.com/in/joseph-kawiecki | jkawiecki.github.io

## EDUCATION

**Purdue University –** West Lafayette, IN **December 2023**
Master of Science: Computer Engineering *GPA: 3.9/4.0*

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

## EXPERIENCE

**Purdue University –** 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 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%

## PROJECTS

**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
- Generated images with 20% better quality relative to baseline as evaluated by Frechet Inception Distance (FID)

**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 variational autoencoder (VAE) model by 5x

## LEADERSHIP

**Boiler Robotics –** West Lafayette, IN **September 2020 – Present**
*President, Member*
- 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)
- Produced vision and obstacle detection software to run on an Nvidia Jetson TX2 with ROS2 and CUDA
- Developed an autonomous Mars rover capable of life detection, equipment servicing, terrain traversal, and more

## SKILLS

- **Languages:** C++, C, Python, Java, JavaScript, HTML, CSS, Bash, CUDA, Verilog, System Verilog, MATLAB
- **Frameworks:** PyTorch, TensorFlow, Keras, ROS, Node.js, CherryPy, React.js, REST API, ONNX, GPU
- **Tools:** Git, Docker, Linux, Agile, GitHub, Jira, OpenCV, NumPy, Scikit-Learn, CARLA, PyBullet, Pandas, SciPy
- **Courses:** Optimization for Deep Learning, Random Variables, RL, Machine Learning, Computational Methods, OS, Artificial Intelligence, Computer Vision, Software Engineering, Data Structures, Algorithms, ASIC Design