Brian Lu

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Education

Purdue University | *August 2022 – May 2025*

B.S. in Computer Engineering

- ECE 30100 — Signals and Systems — *Fall 2023*
- ECE 20875 — Python for Data Science — *Fall 2023*
- ECE 26400 — Advanced C Programming — *Spring 2023*
- ECE 36800 — Data Structures — *Fall 2023*
- ECE 27000 — Introduction to Digital Design — *Fall 2022*
- ECE 33700 — ASIC Design Lab — *Fall 2023*
- ECE 36900 — Discrete Math for Computer Engineering — *Spring 2023*
- MA 26600 — Differential Equations — *Fall 2022*

Skills: *C, Python, Verilog, SystemVerilog, Test Benches, Circuit Analysis, Signal Analysis*

Experience

Merck Sharp & Dohme | *August 2023 – Present*

Undergraduate Researcher

- Constructing automated pipelines to process Merck laboratory data using CV and AI techniques
- Storing and modeling data into a structured multi-modal graph knowledge base

Skills: *Automated Graph Knowledge Base Construction, Computer Vision, Vision Large Language Models*

Eli Lilly & Company | *May 2023 – August 2023*

Software Engineering Contractor

- Developed automated documentation generation reconciling with **Confluence**, replacing legacy system
- Optimized **Apache Airflow** image building operations on both Python Poetry and Docker build steps
- Replicated production deployment on k3d to simulate and resolve **Helm** deployment errors

Skills: *Python, Airflow, Kafka, Neo4j, Jenkins, JFrog Artifactory, AWS, Elastic Kubernetes Service*

Merck Sharp & Dohme | *August 2022 – May 2023*

Student Researcher

- Architected Safety Data Sheet (SDS) parsing and insights software with team
- Software cuts down on **hours** of work per day reading SDS documents, currently being **integrated**
- Wrote **low-level** PDF parsing engine to extract document hierarchies, fields, and images
- Created **OpenCV**-based **classifier** to accurately detect GHS pictograms

Skills: *Python, pdfminer, OpenCV, Tabula, LaTeX, Jinja2, FastAPI*

High Oak Robotics | *May 2021 – January 2023*

Robotics Coach

- Lead design of, wrote, and maintained Sequoia **asynchronous real-time** task scheduling library
- Taught robotics **control**, **navigation**, and programming concepts to team members
- Maintenance of sensor fusion pipeline combining dead wheels and VSLAM for positioning

Skills: *Java, Kotlin, async, Motion Profiling, PID, VSLAM, Dead Reckoning, Sensor Fusion*

Projects

Shamrock Cluster

Homelab cluster composed of 3 Dell Poweredge r710 servers with **RHEL**, **OpenStack**, **Ansible**, **Terraform**, Ceph, Windows Domain Controllers, **OKD/OpenShift**, **Kubernetes**, **Istio**, **Argo CD**, MetalLB. **mTLS**