

EDUCATION

University of Waterloo

Electrical Engineering I Master I Focusing Field: Machine Learning and AI & Software

May 2021 - Dec 2022

Waterloo, Ontario, Canada

GPA: 3.8/4.0*Related Courses: AI, Algorithm Design, Optimization, Data Analysis, Data Structure, Software Testing/Quality Assurance*

Temple University

Electrical Engineering I Bachelor I Minor: Physics

Aug 2015 - Dec 2019

Philadelphia, Pennsylvania, United States

GPA: 3.8/4.0*Awards: Dean's List for all semesters, Honor Student*

EXPERIENCE

Bell's Welding and Mechanical Repair

Software Engineer

Dec 2019 - May 2021

Pennsylvania, United States

- Engineered and implemented an Extract, Transform, Load (ETL) pipeline in **Python** with **PySpark**, standardizing metric semantics across teams, managing diverse data sources ranging from **CSV** files, **web forms**, and **HTML**, while adeptly channeling this data into a **PostgreSQL** database. This resulted a net workflow efficiency gain of up to **50%**, and curbing data errors within the system by **30%**.
- Conducted user interviews and adeptly implemented **Shell** and **Python** scripts with **SQL** for automation, focusing on aspect of **data verification**, **data analysis** with **NumPy** and **Pandas**, and generate **data visualization** with **Matplotlib** using **agile** methods. Collaboratively engaged with stakeholders to design and produce various **data products**, effectively slashing data reporting pipeline time by **80%**.
- Collaborated with stakeholders, authored and revised over **30** detailed technical and solution **documentation** incorporating flow charts and diagrams. This streamlined approach facilitated multiple teams to self-serve, consequently reducing **90%** of customer-related queries and enhancing the overall problem-solving efficiency by **40%**.

PJM Interconnection

Software Engineer

Jan 2018 - Aug 2018

Pennsylvania, United States

- Led and executed testing initiatives for management software, including dissecting and analyzing **requirements**, and spearheading proposals for enhancing product logic to elevate overall **user experience**.
- Authored, reviewed, and updated over **50 unit** and **integration tests**, in addition to **acceptance** and **exploratory testing** in **Python**. Proposed forward-looking optimization strategies aiming at enhancing **runtime efficiency**, including **caching** and **profiling**, and the promotion of **code reusability**. These strategies were meticulously organized into robust, **data-driven proposal documents**.
- Collaborated closely with hundreds of stakeholders, curating and refining more than **20** detailed **technical documentation**. Leveraged insights garnered from **data products** with **Python** and **Microsoft SQL Server**, and extensive **customer feedback** to propose comprehensive project improvement plans for the Knowledge Management Center.

PROJECTS

Kuang's Place

Personal Project

May 2018 - Present

Toronto, Ontario, Canada

- Applied **design best practices** to website development, integrating **JavaScript**, **CSS** and **HTML** for automated generation of elements, element animations, transitions, interactive designs, resulting in a **50%** increase in user engagement.
- Proficiently employed **Python**, **APIs** and **JSON** to seamlessly interact with a **PostgreSQL** database, facilitating the smooth retrieval and display of targeted website information. This resulted in the efficient storage, updating, and retrieval of targeted information across various elements, culminating in a **90%** enhancement in workflow efficiency.
- Elevated user experience by crafting a **user-centric interface**, strategically incorporating Call-to-Action (**CTA**) buttons for enhanced navigation flow, and implementing hover effects for clear visual cues, resulting in improved **usability**. Conducted **user research** and **usability testing** within an **agile** development framework, achieving a **100%** user satisfaction rate.

Automatic Harvest Robot - ShroomBot

Project Leader

Sep 2018 - Dec 2019

Philadelphia, Pennsylvania, United States

- Formulated algorithms and trained **machine learning** modules using **TensorFlow**, **Python**, **C**, **CUDA**, **parallelization**, **sampling**, **ensemble methods**, and **modelling techniques**. Utilized the local machine for processing smaller batches comprising 5,000 images, and transitioned to Amazon Web Services (**AWS**) for datasets exceeding 20,000 images. The primary aim was to accurately identify various types of mushrooms from both photographs and live video feeds.
- Crafted and **optimized** methods, algorithms, and structures taking into account the physical location of machines, **interconnection speed**, and **workflow analysis**. This strategy ensured optimal **data communication speeds** between on-board modules and networked machines, all while actively **validating** the efficiency and data during **runtime**.
- Conceptualized and refined computer model for the robot using **SolidWorks** and **AutoCAD**. Architected software designs that incorporated machine learning, inter-process **communications**, **hardware design**, and precise arm **mechanics** for **simulations**. These simulations were instrumental in verifying both the mathematical model and the **CAD** model.
- Outlined robot **test criteria**, formulated **test cases** and conducted **test result validation** for selected and **automated** functional tests of the Robot Operating System (**ROS**) based arm operations and precise vision identifiers. Developed remote robot **monitoring** algorithms and the **systematic recording** of robot test data for documentation and version comparison during the critical **testing** phase of the robot.

SKILLS & LANGUAGES

- AI & Robotics:** AutoCad, Solidworks, SLAM, CUDA, Tensorflow, PyTorch, OpenCV, Robot Operating System(ROS)
- Software:** C/C++, Python, Java, JavaScript/TypeScript, HTML, CSS, SQL, Swift, MATLAB, Docker, Git, Shell
- Languages:** Chinese Mandarin (Native), English (Proficient)