Kuang Jiang

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EDUCATION

University of Waterloo May 2021 - Dec 2022
Electrical Engineering | Master | Focusing Field: Machine Learning and AI & Software Waterloo, Ontario, Canada
GPA: 3.5/4.0
Related Coruses: AI, Algorithm Design, Optimization, Data Analysis, Data Structure, Software Testing/Quality Assurance

Temple University Aug 2015 - Dec 2019
Electrical Engineering | Bachelor | Minor: Physics 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 LLC Dec 2019 - May 2021
Software Engineer Pennsylvania, United States

- Engineered and implemented an Extract, Transform, Load (**ETL**) pipeline in **Python**, standardizing metric semantics across teams, managing data sources including **CSV** files, **web** forms, and **HTML**, while adeptly channeling this data into a **PostgreSQL** database. This resulted in a **50%** workflow efficiency gain and a **30%** reduction in data errors.
- Conducted **user interviews** and adeptly implemented **Shell** scripts for **automation**, focusing on aspect of **data verification**, **cross-validation**, **data analysis** with **NumPy** and **Pandas**, and generate **data visualization** with **Matplotlib** using **agile** methods. Collaboratively engaged with stakeholders to design various chart types for report generation, effectively slashing analysts' data reporting pipeline time by **80%**.
- Authored and revised over 30 detailed technical and solution **documentation** incorporating step-by-step 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 LLC Jan 2018 - Aug 2018
Software Engineer 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 optimization strategies aiming at enhancing **runtime efficiency**, including **caching** mechanisms, and **code reusability**. These strategies were organized into robust, **data-driven** proposal documents.
- Collaborated closely with hundreds of stakeholders, curating and refining more than 20 detailed **technical documentation**. Leveraged invaluable insights garnered from extensive **customer feedback** to propose comprehensive project improvement plans for the Knowledge Management Center.

PROJECTS

Dino Runner Mar 2023 - Present
Personal Project Waterloo, Ontario, Canada

- Employed the **Selenium** module to orchestrate uninterrupted gameplay of Google's offline dino game, which integrated inputs from trained ML module. This adept mimicry of **user operations** led to a **70%** success rate in predicting action.
- Developed algorithms through the utilization of **OpenCV** to capture intricate in-game **visuals**. Prepared and processed 50 sets, 100,000 images in total, all of which served as assets in the subsequent training of ML models.
- Designed reinforced **machine learning** modules using **TensorFlow**, **Python**, and **Pandas**. Integrated **parallelization**, **sampling**, and **ensemble methods**, amalgamating previously collected images and operational findings to adeptly train the agent. Employed local machines for training small image sets, seamlessly transitioning to Amazon Web Services (**AWS**) for the larger datasets, ensuring an efficient and scalable training process.

Automatic Harvest Robot - ShroomBot Sep 2018 - Dec 2019
Project Leader Philadelphia, Pennsylvania, United States

- Formulated algorithms and trained **machine learning** modules using **TensorFlow**, **Python**, **C**, **CUDA**, **parallelization**, **sampling** and **ensemble methods**. 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**.
- Collaboratively 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 comprehensive **computer 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, Robot Operating System(ROS)
- **Software:** C/C++, Python, Java, JavaScript/TypeScript, HTML/CSS, Swift, Verilog, Assembly, MATLAB, Docker
- **Languages:** Chinese Mandarin (Native), English (Proficient)