Aaron Zhang

UNDERGRADUATE COMPUTATIONAL MATH

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HIGHLIGHT OF QUALIFICATIONS

- Expert in web-app development, CI/CD pipelines, versioning with Git, and integration of APIs and microservices
- Well-versed in QA, writing unit tests, and integration tests with tools like Selenium and Playwright
- Have work experience with creating and applying Machine Learning concepts in industry-standard solutions
- Proficiency in Object-Oriented Programming with Python and C++, and can quickly pick up new languages

TECHNICAL SKILLS

Languages
Python, C++, SQL, R, MATLAB, Bash Javascript, HTML, CSS, JSON, YAML

Technologies and Tools
AWS (EKS, EC2, S3), Azure, AzureDevOps, Docker, Kubernetes, Git, GitHub, Playwright, Selenium, React

EDUCATION

BMATH - Major in Computational Mathematics, 2020 - Present
- The University of Waterloo, expected graduation in 2025
- Relevant Courses: CS135, CS136, CS234, CS246, CS230, STAT230, STAT231, STAT341

WORK EXPERIENCE

Site-Reliability and DevOps Engineer - Openlane - Fall 2022
- Incident Response and Management Web Application (Firefighter)
  - Led development and maintenance of a web app for incident response and management, the app is utilized company-wide (5,000+ employees)
  - Coded in Python with Flask, Slack API, and AzureDevOps API
  - Set up the staging environments production, integration, and testing in AWS (EKS clusters), GitHub (long-lived branches with versioning), and Azure (Secrets and Tokens)
  - Created CI/CD pipelines in AzureDevOps for automated integration testing, unit testing, code linting, Docker container creation, deployment to AWS, Git versioning, release management, and more
  - Utilized continuous EKS cluster monitoring with endpoint liveliness and readiness probes
- Automatic Azure Pipeline for GitHub Semantic Releases
  - Deployed across all GitHub repositories in the organization
- General DevOps Duties
  - Restarting Kubernetes pods through k9s or EKS
  - Updating environment variables
  - Updating outdated documentation on processes

Machine Learning Developer - Huawei Technologies - Winter 2022
- Machine Learning for Quadrature Amplification Modulation Systems
  - Implemented and created training scripts for customized neural networks as replacements for MQAM Modem objects used in digital communications systems
  - Utilized the Deep Unfolding machine learning concept to construct a neural network to imitate a WMMSE Algorithm
  - Replicated AWGN Channel Simulation to do analysis on simulation times and computational complexity with profilers (in MATLAB and in Python)

AI/ML Developer - Eon Media Corp - Summer 2021
- Real-time brand recognition
  - Developed and headed the deployment of a brand metadata extraction solution for the USA National Cycling Championships event
  - Built Bash and Python scripts for automating entire detection and recognition processes
  - Trained and did hyper-parameter tuning on industry-standard detection and recognition models
  - Implemented scene-segmentation, body region recognition models, classification, and detection models in Torch, TensorFlow, and Keras, both with and without GPU usage

PERSONAL PROJECTS

Watopoly (Monopoly Clone) 2023
- Programmed in C++ following the MVC design pattern, using encapsulation on each component we achieved high coupling and low cohesion
- Coded multiple high-level Classes and Objects with different design patterns such as Observers, Superclassing, etc.
- Implemented complex banking system which included Mortgaging, Loaning, and Property Sales utilizing maps
- Created a graphical display for the board which kept track of player locations and buildings

Facial Image Classifier 2019
- Coded and trained a neural network with TensorFlow and Keras in Python to recognize human faces and their gender
- Applied Machine Learning and Image Classification concepts learned from self-guided studies
- Annotated and created my own dataset of 2000+ images for training and validation
- Achieved 85% accuracy when determining the gender of a human face and 90% accuracy when recognizing human faces