Houfu Chen

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Summary

– Machine Learning Engineer with teaching experience in AI and Python, plus extensive QA background in performance testing, automation, and network diagnostics.
– Skilled in multiple cross-platform testing methodologies including BDD/TDD, performance testing & regression testing.
– Recognized as Featured Alumni in UofT's Master of Engineering - ML & Analytics Emphasis program (reference).

Work Experience

Teaching Assistant (Machine Learning & Python)   01/2024 – Present
University of Toronto   *Toronto, ON*

– Design and implement ML pipelines covering Feature Engineering, Advanced Analytics, K-Means, KNN, SVD, PCA, and Neural Networks.
– Evaluate and optimize machine learning models to ensure optimal performance and scalability.
– Mentored and provided guidance for students on ML concepts and techniques, demonstrating patience and clear communication of complex technical material.

WiFi Software Testing Engineer   05/2022 - 08/2022
Ford Motor Company Of Canada Limited   *Oakville, ON*

– Used iperf to test ECU components (SYNC and TCU) on performance across multiple protocols (TCP/UDP/FTP/HTTP), scenarios, frequencies (5G/2.4G), and security levels (open/wpa2).
– Fixed 40+ SSH exception issues by updating Ubuntu and iperf versions, modifying WLAN commands (removed -w and -P options for normal execution).
– Fixed several Selenium exception errors by updating the ChromeDriver version on testing laptops.
– Developed comprehensive documentation on Ubuntu operation, iperf3 testing procedures, and troubleshooting guides for SSH and Selenium exceptions for future testers.

QA Developer   01/2021 - 04/2021
Imagine Communications   *Waterloo, ON*

– Writing daily tests to notify the team of daily server status, retrieving using CSS element locations.
– Ensured disabled elements are hidden from users.

QA Automation Specialist   09/2020 - 12/2020
Teranet Inc.   *Mississauga, ON*

– Wrote regression tests with C# under Selenium framework to improve system reliability.
– Optimized test execution time and technical health.

Software QA Engineer   01/2020 - 04/2020
Manulife   *Waterloo, ON*

– Developed BDD and TDD test scenarios for cross-browser compatibility, resolving 9 IE-specific defects.
– Fixed 40+ SonarQube issues achieving 98%+ test coverage, reducing production defects by 15%.

Projects

AI Emotion Analysis System for People in Videos   03/2025
MLOps Implementation; Associate Machine Learning Engineer   *GitHub*

– Innovated end-to-end ML pipeline for facial analysis using DeepFace and MediaPipe with automated deployment.
– Created & deployed model endpoints for consistent contextual scene analysis and emotion correlation with high accuracy.
– Implemented ML model monitoring and versioning system with real-time performance metrics.

Emergency Route Planner Framework   09/2024 – Present
ML Pipeline Development; Machine Learning Engineer   *Toronto, ON*

– Built production-ready evacuation routing system using ML algorithms and LLM-based decision-making.
– Implemented ML infrastructure with agent-based simulations (OctoTools) and optimization tools.
– Developed CI/CD pipeline for continuous model improvement and deployment.

ML Personal Projects   2024 - 2025
MLOps and Model Deployment; Machine Learning Engineer   *GitHub*

– Reinforcement Learning (2024): Designed and deployed RL agent with monitoring and performance metrics.
– Financial Tool (2024): Built and operationalized LLM-powered financial service analysis tool.
– Food-Raccoon (2024): Implemented production ML pipeline for restaurant recommendation system integrating LLMs with location APIs.

Skills

Programming Languages: Python, SQL, C/C++, C#, JavaScript

Testing & QA: Selenium, iperf3, Charles Proxy, BDD/TDD, Performance Testing, SonarQube, API Testing

ML/AI: TensorFlow, PyTorch, Scikit-learn, LLMs, DeepFace, Feature Engineering, Neural Networks

DevOps & Infrastructure: Git, Docker, Kubernetes, Linux/Ubuntu, Azure, TCP/IP Networking

Data Engineering: Pandas, NumPy, Model Monitoring, Data Visualization

Education

University of Toronto (Graduated in 03/2025)	Master of Engineering in Electrical & Computer Engineering
University of Waterloo (Graduated in 06/2023)	Bachelor of Applied Science in Nanotechnology Engineering

Certifications

Stanford Algorithm & Data Structures Certification (01/2025)

Stanford & DeepLearning.AI - Machine Learning Specialization (03/2025)

University of California, Davis - SQL for Data Science(03/2025)