Toronto, ON
+1 647-633-9933
houfu.chen@mail.utoronto.ca
linkedin.com/in/houfuchen
github.com/chf-NewStart
https://houfu72.com

Houfu Chen

Summary

– Machine Learning Engineer with teaching experience in three undergrad/grad level AI (Artificial Intelligence) and Python courses, plus hands-on experience in operationalizing ML (Machine Learning) models, developing ML pipelines, and automating workflows.
– Featured Alumini in UofT MEng ML & Analytics Emphasis, strong data science and leadership skill.
– Experienced in deploying models in Agile production environments and optimizing their performance.

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, Neural Networks, and Gradient Descent.
– Evaluate and optimize machine learning models to ensure optimal performance and scalability.
– Mentored and provided guidance for students on ML concepts and techniques, demonstrating clear communication of complex technical material.

QA-Dev (Multiple Companies)
01/2020 - 08/2022
Ford Motor; Imagine Communications; Teranet; Manulife — *Waterloo, Mississauga & Oakville, ON*

– Deployed and operationalized automated testing systems, improving reliability by 10% and test coverage by 30%.
– Implemented DevOps pipelines with Git, automated testing, and code scanning technologies.
– Fixed SonarQube issues achieving 98% test coverage and developed BDD test scenarios.
– Built and maintained scalable infrastructure for UI automation frameworks and server health monitoring.

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, HTML

ML/AI Tools: TensorFlow, PyTorch, Scikit-learn, Large Language Models (LLMs), DeepFace, MediaPipe

Data Engineering: Pandas, NumPy, ETL pipelines, Spark, Data Factory, Databricks

MLOps & DevOps: Git, Docker, Kubernetes, Jenkins, Azure ML, Model Monitoring, Versioning, Lifecycle Management

Cloud & Infrastructure: Azure Stack, Google Cloud Platform, Linux, Cloud-native Architecture

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)