





Charmaine Liu


Computer Science MSc.

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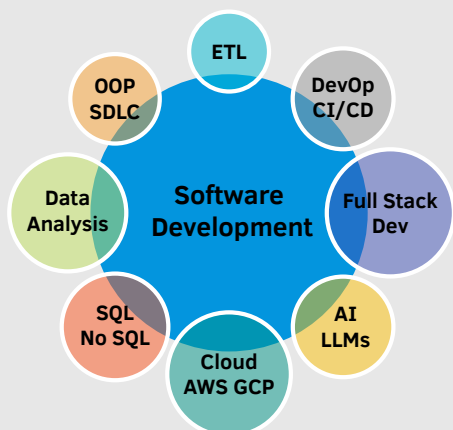
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Skills

Overview



Programming

JavaScript • Go • Python

Bash • C/C++ • Rust • SQL

C# • CSS • HTML • Java • PHP

Profile

Software engineer with strong expertise in Python, Go and web development, building APIs and backend systems using Flask, FastAPI, Django, Nodejs and Express. Experienced in designing low-code and no-code workflows to orchestrate data pipelines and automate processes, with practical exposure to AI-enabled services, including large language models, prompt engineering, agents and retrieval-augmented generation (RAG) use cases.

Highly Skilled in data analysis with Pandas and NumPy

Extensive experience in ETL and API integration, having led integration projects for major clients in the healthcare and financial industries.

Significant exposure to Microservices, RESTful architecture and Docker container technology.

Ample hands-on experience with Shell scripting, RDBMS & SQL, ETL, CI/CD, OOP, SDLC, Agile, Version Control Tools such as Git, Project Management tools including Asana and Jira.

Work Experience

- Jun 2021 – Present **Software Developer** The Citywide Group
Toronto, Canada
- System design, fullstack development and API integration for web based property management platform, managing and optimizing IT infrastructure to continue enhancing client satisfaction and retention. (**Go, Python, Flask, Linux, FastAPI, Docker, MySQL, AWS, Airflow, Liquibase, TypeScript, React, Terraform**)
 - Integrated LLM-based services into existing workflows, including prompt design, private-hosted LLMs, AI agent and RAG, significantly improved security, reliability and efficiency. (**LangChain, LangGraph, pgvector**)
 - Applied AI techniques to automate workflows and enhance data-driven decision making.
- Jul 2020 – Jun 2021 **Software Developer** Cybage Software
Toronto, Canada
- Backend development and Unit testing for web based BI services (**Python, Flask, Linux, Docker, CircleCI, AWS ECS/SNS/SQS/S3, ElasticSearch, Splunk**)
 - Introducing new features, trouble shooting and bug fixing for CRM platforms (**NodeJs, Angular, Express, jQuery, GCP, Mongo**)
- Dec 2019 – Apr 2020 **Software Developer** StorageVault
Toronto, Canada
- Fullstack web development for CMS platforms(**Python, Django, PostgreSQL, JavaScript, VueJs, Sass**)
 - Development and Deployment support for for CRM platforms and Payment Gateway (**Bash, Docker, AWS EC2/ECR/EKS, Kubernetes, PayPal, Stripe**)
 - ETL and data integration for marketing data reporting and analysis with **SOAP** and **REST** APIs (Facebook Ads, Google My Business, Google AdWords, Semrush, Tustpilot, Bing Ads, etc.)
 - Trouble shooting and bug fixing for existing CMS. (**PHP, symfony, twig, Bolt CMS, MySQL, Apache2, Vagrant, WordPress**)
- Mar 2019 – Oct 2019 **Software Developer** Indoc Research
Toronto, Canada
- Backend development of a medical research data portal, implementing microservices architecture (**Flask, SQLAlchemy, Jinja2, Python, PostgreSQL, Redis, Solr, LDAP**)
 - Advanced data analytics and report generating (**Pandas, NumPy**)
 - Deployment and configuration support for production environment (**Linux, Elasticsearch, Kibana, Spark, Apache 2, GCP, Nginx**)
- Oct 2018 – Jan 2019 **Software Engineer** DMTI Spatial
Toronto, Canada
- Backend development of data importing and interpolation services for a GIS platform with emphasis on scalability (**Node.js, Linux, Elasticsearch, Docker, SQLite, Shell Scripting, VMware**)
 - Built, deployed and documented RESTful APIs compatible with OpenAPI standards (**.Net Core, SQL Server, Azure, Swagger**)
- May 2017 – Aug 2017 **Intern** China Development Bank HQ
Beijing, China
- Collaborated with the Risk Management team to map and analyze process flows, identifying control gaps and proposing remediation strategies aligned with the bank's risk governance framework.
- Jun 2013 – Dec 2016 **Research Assistant** Memorial University of Newfoundland
St. John's, NL Canada
- Model development and numerical simulation/analysis of artificial and biological neural networks
- Sept 2012 – Dec 2014 **Teaching Assistant** Memorial University of Newfoundland
St. John's, NL Canada
- Code review and code testing, violation of honor code detecting (**C/C++, Fortran, Python, R**)

Academic Projects of Note

Delay Differential Equations and Bifurcation Theory in neural networks

- Detected hidden bifurcations in an artificial neural network to validate theoretical predictions, conducted simulations and visualizations of complex DDE models using **Matlab** and **Maple**

Education

- 2012 – 2017 **MSc., Computer Science** Memorial University of Newfoundland, Canada
2011 – 2012 **Master's Candidate, Biomedical Engineering** Beihang University, China
2007 – 2011 **BSc., Computer Science** Northeastern University, China