

EDUCATION

University of Manitoba Bachelor of Science Major Computer Science DGPA 4.0 / 4.5 Bachelor of Science Major Biochemistry	Winnipeg, MB Canada Jun 2024
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TECHNICAL SKILLS

• TypeScript	• Ubuntu	• OpenCV	• Docker	• REST
• Node.js	• C#/.NET	• AWS/GCP/Azure	• C / C++	• Catch2
• React	• RAPIDS	• Scikit	• GitHub	• PyTest
• Angular	• Python	• PyTorch	• SQL	• Git

EXPERIENCE

Data Scientist	Oct 2024 – present
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Canadian Food inspection Agency, Government of Canada

- Trained vision transformer based image classification models to determine the species of weed seeds regulated by the agency.
- Created training, evaluation, and deployment pipelines for machine learning models.
- Led a team of 8 students to create applications that allow CFIA employees to use our models.
- Contributed to the development of a web application that allowed users to submit pictures or take camera screenshots to classify visible weed seeds against known contaminant species.
- Contributed to the development of an application that extracts information from fertilizer labels to improve efficiency of the fertilizer inspection process.
- Created and maintained Argo CD Application manifests to automate the deployment of micro services across diverse Kubernetes platforms, including Azure Kubernetes Service (AKS) and on-premises clusters, demonstrating adaptability to varying infrastructure requirements. , enabling continuous delivery and faster release cycles.
- Troubleshooted network connectivity problems between pods and external services, ensuring seamless communication with Azure Postgres, Azure Storage, and other critical components.
- Streamlined local development setup by encapsulating the entire application stack within Compose files, allowing developers to run applications independently without relying on shared environments.
- Reduced ML model deployment costs by 25% by migrating from AzureML and dedicated VMs to a Kubernetes-based solution, optimizing cloud infrastructure spending.
- Enhanced security posture by developing GitHub Actions to automatically scan for password leaks using TruffleHog, ensuring continuous monitoring of code repositories.
- Stack: React, TypeScript, Flask, FastApi, Postgres, PyTorch, Torchserve, Azure, AzureML, Docker, Kubernetes, ArgoCD, Hashicorp Vault, GitHub.

Programmer Analyst (Full Stack)	Sep 2023 – Oct 2024
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Research Technician	Feb 2011 – Sep 2023
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Canadian Grain Commission, Government of Canada

- For four years, led task planning and scheduling for 4 technicians to organize work for the Harvest survey program.
- Led a team of 5 students to explore machine learning models to predict the incidence and severity of Ergot. Used GitHub for source code hosting and project tracking. Developed CI pipelines using GitHub Actions for automated type checking and linting.
- Designed a multi layered microservice architecture for project development and deployment. Defined Postgres and GPU enabled TensorFlow RAPIDS container environments. Created Docker swarm definitions for rapid environment setup. Created ETL pipelines in Python to scrape API endpoints for soil and weather data from ground station and satellite sources.
- Explored Random Forest models for weather-based predictions of wheat crop protein content.
- Contributed to open-source software projects. Implemented structural code changes that fixed bugs and significantly improved performance of a React TypeScript front end layer. Participated in code review to suggest changes in-line with best practices. Created Vitest unit test suites to validate components critical to app functionality. Added components to allow user feedback on AI model inferences.
- Created and updated TypeScript React components for Microsoft Power Platform Power Apps web portals for external services. Used Azure CLI and Power Platform CLI to push changes. Debugged Azure pipeline deployment issues. Added new features and fixed bugs in internal LIMS applications using PowerShell. Developed new views and stored procedures for MS SQL server databases. Collaborated with Agile teams using Azure DevOps, GitHub, and ServiceNow.
- Created animated charts and geographic choropleth maps to display protein distributions and historical data using Python for publication on the organization website.
- Developed ETL programs in C#, VBA, and TypeScript to extract data and add custom functions to instrument control software.

EXPERIENCE

Software Engineer (Full Stack) Part-time Consultant

Aug 2024 – Mar 2025

Kipling Media

- Designed and implemented a ticketing platform to sell event tickets.
- Designed and implemented a domain-separated microservice architecture, enabling independent scaling and deployment of individual services.
- Managed AWS infrastructure using Pulumi, enabling declarative configuration and automation of deployments, ensuring consistency and reproducibility
- Secured API access by implementing authentication using AWS Cognito and integrating Cognito authorizer with API Gateway, ensuring only authorized users can access resources.
- Orchestrated critical business processes using AWS Step Functions, automating complex workflows and ensuring reliable execution.
- Selected and implemented appropriate database technologies for different services based on specific requirements, utilizing PostgreSQL for relational data and DynamoDB for NoSQL data.

Software Engineer (Full Stack) Part-time Consultant

Mar 2023 – Dec 2024

DecisionWorks

- Designed and implemented a dashboard system to display and manage railway maintenance jobs with a frontend in Angular TypeScript, backend in C# dotnet core on an IIS server, and a data layer in MS SQL.
- Designed a React application hosted on S3 to allow clients to upload folders of files to S3 for processing.
- Developed an embedded Google maps component with GeoJSON layers, custom markers, and clusterers for data visualization.
- Created a calendar scheduling system to plan railway maintenance tasks and deploy workers.
- Created scripts to deploy AWS EC2 and LightSail resources using AWS CLI, AWS EventBridge, AWS Lambda, AWS API Gateway. Developed end to end automated integration tests using Playwright.
- Communicated with the client to gather user requirements and proposed solutions to address their needs. Estimated time and effort required to develop requested features. Incorporated feedback into future design and deliverables.

Software Engineer (Full Stack) Casual

Jun 2024 – Oct 2024

University of Manitoba

- Designed and implemented a split network system using an Ubuntu Server with two NICs to administer an isolated network of 70 Raspberry Pi machines for Precision Agriculture.
- Designed Ubuntu Server base images that self assign unique server names to allow seamless addition of new systems.
- Wrote Python and C++ to gather and process RGB, IR, and TOF Depth data from a multisensor camera
- Created Ansible scripts to manage swarm configuration, monitoring, data migration, and scripts to push new script changes to the swarm.

Software Developer (Full Stack) Part-time Consultant

Sep 2023 – Dec 2023

Software Developer (Full Stack) Co-op

Jan 2023 – Apr 2023

AGCO Corporation

- Implemented new functional React components to display remote sensor data from LoRaWAN endpoints on a dashboard. Converted vanilla JavaScript class based React components to TypeScript functional React components.
- Implemented an alert system to warn users of critical fan system control failures to catch them early and prevent losses.
- Contributed new backend features in Python to support new API functionality using AWS Chalice for serverless AWS applications.
- Troubleshoot and fixed bugs in both front end and backend code.
- Managed local dev environments in Docker containers for local dev and testing. Addressed Issues that came up on GitLab CI/CD pipeline tests to fix non-conforming code. Created PyTest and Jest, unit, and integration tests.
- Worked in an Agile environment, participated in scrum activities.

PROJECTS

- Personal Cloud / Home Lab** | ZFS, Linux, GCP, AWS, VirtualBox, Docker 2014 - Present
- Network of multiple LAN hosted, cloud hosted, and hypervisor hosted web services.
 - Mixture of LAN Linux and Windows hosts; Linux hosts on AWS that run applications in docker to provide VPN, Reverse Proxy, SOCKS5, SSH, remote desktop, content delivery, server monitoring and other services.
- Forest Fire Prediction Model** | Python, Docker, Postgres, QGIS, GeoPandas, sklearn 2022
- Used Python to scrape data from weather stations nearest forest fires.
 - Extended Postgres and Nvidia TensorFlow containers to build dev environments for machine learning.
 - Trained and evaluated SVM and Random Forest models for forest fire severity prediction using weather.
- Meal Planner Calorie Tracking App** | Android, Java, JUnit, Espresso, HSQLDB 2022
- Designed and built a Java Android app following Agile development practices.
 - Applied software design patterns, implemented object-oriented class design, and thorough unit testing.
 - Implemented a relational database in Hyper SQL DB to store application data. Followed a 3-layer architecture.
- Piston Pump** | Fusion360, KiCAD, C++, Atmel SAMD 2019 - 2022
- Designed and built a piston based liquid delivery device that exceeded ASTM class A standards for accuracy and delivery speed.
 - Designed touchscreen interface for human interaction, control, calibration, error recovery.

HOBBIES

Obstacle Course Racing

Trained and participated in 6 5K, 10K, 21K Spartan races, Attended Tough Mudder Twice, a few Mud Hero's

Rock Climbing