

Robert Chi

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Engineering
Co-op Program

EDUCATION

University of Alberta

Bachelor of Science in Electrical Engineering Co-op

- Cumulative GPA: 3.8/4.0

Edmonton, AB

Sept. 2022 – May 2027

EXPERIENCE

AI & Automation Engineering Intern – Leak Detection

Jan. 2026 – Aug. 2026

Enbridge

Edmonton, AB

- Built and deployed a node-based automation tool adopted by a 12-engineer leak detection team, turning pipeline simulation and internal tools into reusable LiteGraph nodes and cutting routine model setup from 15–30 minutes to under 1 minute.
- Deployed a Jira RAG assistant over 20,000 historical issues, using REST API ingestion, team-specific context files, and a classification agent feeding a Copilot Studio reasoning agent to surface past investigations from plain-language queries.
- Diagnosed flowmeter noise causing leak detection false alarms using six months of readings; validated a rolling-median filter with no missed detections in historical leak tests and deployed the filter to production.

AI Research Assistant – Medical Imaging

Jan. 2025 – Apr. 2025

University of Alberta

Edmonton, AB

- Annotated 150+ X-ray and ultrasound images, deliberately including moderate and severe cases, to expand the ground-truth dataset for a clinical segmentation model and improve its coverage of hard examples.
- Built a Python validation tool that computed per-image IoU and Dice scores against reference masks, checking annotation consistency and flagging questionable masks for review before training.
- Analyzed annotation error patterns by modality and case severity, identifying recurring failure modes and presenting recommendations for the group's next round of data collection.

Electronics and Embedded Systems Intern

May 2024 – Aug. 2024

Unmanned Vehicle Applied Dynamics (UVAD)

Medicine Hat, AB

- Implemented C++ telemetry over TCP for a plug-and-play UAV payload system, streaming multi-sensor data from the payload board to a ground station at 50 Hz and validating the link in a hardware-in-the-loop rig.
- Integrated CAN bus messaging to transmit real-time angle of attack, angle of sideslip, and calibrated airspeed from the vehicle, verifying every decoded channel against the physics simulation.
- Established a live-video feed over the UAV's proprietary datalink, using Wireshark to inspect raw packets and trace silently dropped frames, then fixing the frame-size mismatch to reach a stable 30 fps on the bench.

PROJECTS

Tandem | *React Native, TypeScript, Swift, Supabase*

tandemvlog.com

- Built a data-driven video renderer with nine styles, computing tile geometry once in TypeScript so the live preview and Swift/AVFoundation export tile identically; exports render on-device in about 3 seconds with a frozen legacy resolver for byte-identical re-renders.
- Designed a Supabase backend with membership-gated row-level security verified by cross-vlog isolation tests; supported shared boards and clip uploads through Realtime, an offline outbox, and server-side grace windows.
- Engineered a multi-agent development pipeline: each change runs in an isolated Git worktree through a builder agent, adversarial review by a second model, and a verifier that reproduces every finding, then gates on about 1,400 tests and founder review before merge.

Wildfire Spread Prediction | *Databricks × Enbridge Hackathon Winner*

- Trained a tree-based model on 20,000+ Alberta wildfires to predict spread rate from wind speed, temperature, humidity, fuel type, slope, and initial size, evaluated on held-out fires.
- Built a cellular-automaton spread simulation on a map grid, converting predicted rates into per-step ignition probabilities with wind-direction weighting, and overlaid Enbridge pipeline and facility locations to estimate time-to-impact for each asset.
- Built the project end-to-end on the Databricks Lakehouse, cleaning and joining 19 years of fire and weather records into Delta tables in notebooks and deploying the interactive spread simulation as a Databricks App.

TECHNICAL SKILLS

Languages: Python, C/C++, TypeScript/JavaScript, Swift, SQL, MATLAB

AI & Machine Learning: XGBoost, scikit-learn, MLflow, RAG, LLM agent workflows, Copilot Studio

Data & Modeling: Databricks, Delta Lake, pandas, Jupyter, IoU/Dice, signal filtering

Developer Tools: Git, Linux, Docker, CI/CD