

Reese Chong

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EDUCATION

University of Waterloo

Waterloo, ON

Honours Bachelor of Computer Science (BCS)

UW Reality Labs, Rock Climbing, Socratica

EXPERIENCE

Embedded Linux Developer

Sept 2025 - Present

UW Reality Labs

Victoria, BC

- Implementing core XR runtime subsystems to support the **full WebXR specification**, including a custom event dispatcher.
- Developing hardware interface layers that expose camera streams, sensors, and display pipelines directly to developers.
- Writing kernel-level code including a **custom DRM/KMS Linux driver** (MIPI DSI panel, I²C power regulator, backlight).
- Developing and testing on-device toolchains to enable live coding and debugging directly in XR hardware without need for a PC.

Software Engineer Intern

Apr 2025 - Aug 2025

ElasticEnergy.com

Victoria, BC

- Engineered React/TS web dashboard for **10k+** IoT devices using a device-scoped cache, reducing re-renders by 70%.
- Benchmarked worker-accelerated, paginated data tables: **20k rows** with **<200ms** search, 50k rows with \approx 1s indexing.
- Implemented strict CSP and header middleware to block **100%** of inline scripts, mitigating cross-site scripting (XSS) vectors.
- Enforced secure authentication by integrating AWS Cognito user pools with role-based access control across the dashboard.

Drone Researcher

May 2023 - Aug 2023

University of Toronto Institute for Aerospace Studies - Flight Systems and Control Lab

Vaughan, ON

- Researched and prototyped quadrotor slung-payload systems, validating stable lift of \approx **2 kg** through stress/strain analysis.
- Fabricated payload deployment mechanisms via CATIA structural modelling, 3D-printed parts, and Arduino-controlled motors.

PROJECTS

Notes-to-3Blue1Brown-Video Generator | 🧠 | *React, Next.js, TypeScript, Firebase, Google Cloud (GCP)*

- API product that generates visual educational explainer videos for **1M+** users via B2B EdTech partners.
- Reduced inference cost by **\$0.10** per request and generation time by **4m15s** by fine-tuning Groq inference models.
- Curated a custom dataset for Manim files, implementing stratified cross-validation with calibration over **50k+** samples

ML YouTube Filter Chrome Extension | 🧠 | *Python, TensorFlow, Snorkel, Chrome Extension API*

- Trained a **logistic regression model** on YouTube metadata detecting educational videos with **91% precision, 87% recall**.
- Engineered selective classification with calibrated thresholds, optimizing precision to **99.1%** while maintaining 76% coverage.
- Reduced regression detection time from **1h to <5 minutes** in CI by implementing a testing framework using headless browsers.

Textbook-to-Embeddings Learning Platform | 🧠 | 🧠 | *Python, Postgres, Docker, SQLAlchemy*

- Flashcard app ingesting **1000+** page PDFs with OCR pipelines and a knowledge-graph layer linking new content to old topics.
- Scaled ingestion to **<2s** for \approx **750k token documents** with **95%** parsing accuracy allowing downstream search with PGVector.

ChatGP-Me (Winner of Hack The North 2024) | 🧠 | *Unity, Cohere API, C#*

- Unity game where you pretend to be ChatGPT, and AI grades how artificial you sound. One of 12 winners out of **236 teams**.
- Designed prompt chains (e.g., scoring tone, coherence, and LLM-likeness separately) with reranking heuristics to grade players.

Hawkeye Vision Aid (Winner of Hack The North 2023) | 🧠 | *Python, Google Cloud Vision*

- Smart glasses software to assist visually impaired students, achieving **92% OCR accuracy** on lecture whiteboards.
- Applied Vision, NLP models for summaries, streaming descriptions with **<500 ms** latency and **>90%** transcription accuracy.

SKILLS

Languages/Frameworks: Python, TypeScript, JavaScript, React, React Native, SQL, C/C++, Java, Racket/Scheme, Bash

Frameworks: React.js, Next.js, FastAPI, sklearn, PyTorch, SQLAlchemy, LangChain, Tailwind

Technologies: Git, Docker, PostgreSQL, Supabase, AWS, GCP, ChromaDB, Unity, Postman