

# REESE CHONG

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## EDUCATION

### University of Waterloo

Honours Bachelor of Computer Science (BCS)  
VR Engineering Design Team, Rock Climbing, Socratica

Waterloo, ON

## EXPERIENCE

### Software Engineer Intern

[ElasticEnergy.com](https://ElasticEnergy.com)

Apr 2025 - Aug 2025

Victoria, BC

- Engineered React/TS SPA dashboard for **10k+** IoT devices; device-scoped cache keyed by ID reduced re-renders by 70% via partial updates.
- Benchmarked worker-accelerated data tables: **20k rows** with **<200ms** search/pagination, 50k rows with  $\approx 1\text{s}$  indexing, no jank via offload.
- Implemented strict CSP and header middleware to block **100%** of inline scripts, mitigating XSS vectors and meeting security compliance.
- Enforced secure authentication by integrating AWS Cognito user pools with role-based access control across the dashboard.

### Software Engineer Intern

[McCray Optical, Inc.](https://McCrayOptical.Inc)

May 2024 - Aug 2024

Markham, ON

- Designed retrieval system for **15k+** vector embeddings of customer inquiries, cutting support onboarding time by 2 weeks.
- Achieved accurate,  $\approx 150\text{-}250\text{ms}$  query latency by embedding answers with local models and reranking results with **Cohere Rerank**.
- Automated email ingestion into Pandas DataFrames via vectorized preprocessing and schema normalization for embeddings pipeline.

### Full Stack Engineer

[SlaySchool.com](https://SlaySchool.com)

Jan 2023 - Apr 2024

Toronto, ON

- Built a full-stack doctor simulator with patient-like conversational agents, built with React/TS + Next.js frontend and Supabase backend.
- Architected state management with layered React Context and custom hooks, synchronizing session state across multi-stage workflows.
- Designed Supabase schemas with foreign key constraints to persist sessions and stats, enforcing consistency across patient cases.

### Drone Researcher

[University of Toronto Institute for Aerospace Studies - Flight Systems and Control Lab](https://UniversityofTorontoInstituteforAerospaceStudies-FlightSystemsandControlLab)

May 2023 - Aug 2023

Vaughan, ON

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

## PROJECTS

### Torial VideoGen AI | [Website](#) | [Blog Post](#) | React, Next.js, TypeScript, Firebase, Google Cloud (GCP)

- API product that generates 3Blue1Brown-style explainer videos for **1M+ users** via B2B EdTech partners.
- Reduced inference cost by **\$0.10** and generation time by **4m15s** by fine-tuning Groq inference models on a custom Manim dataset.

### Clarigo YouTube Filter | [GitHub](#) | [Blog Post](#) | Python, TensorFlow, Snorkel, Chrome Extension API

- Chrome extension that filters non-educational YouTube videos with **91% precision** and **87% recall**,  $\approx 1000$  users on Chrome Web Store.
- Trained a **logistic regression model** on YouTube metadata using custom dataset and TensorFlow with maximum privacy (no external APIs)

### Dojang | [GitHub](#) | [Blog Post](#) | Python, Postgres, Docker, SQLAlchemy

- Flashcard app ingesting 1000+ page PDFs with OCR/parse pipelines and a knowledge-graph layer linking new content to existing topics.
- Scaled ingestion to **<2s** for  $\approx 750\text{k token PDFs}$  with **95%** parsing accuracy on multi-million-token docs using SQLAlchemy + PGVector.

### ChatGP-Me (Winner of Hack The North 2024) | [Blog Post](#) | 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 player responses.

### Hawkeye Vision Aid (Winner of Hack The North 2023) | [Blog Post](#) | Python, Google Cloud Vision

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

### Explora AI Courses | [Blog Post](#) | Python, Next.js, React, Neo4j

- A “Duolingo for anything” app that helps users learn any subject by generating courses on-demand.
- Engineered a graph-driven course engine: Neo4j topic/prereq modeling and SSR/edge APIs in Next.js with Postgres-backed user state.

## SKILLS

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

**Frameworks:** React.js, Next.js, FastAPI, Pydantic, NumPy, pandas, sklearn, PyTorch, SQLAlchemy, Snorkel, LangChain, Tailwind

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