

# Timothy Cao

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## TECHNICAL SKILLS

**Languages** Python, Go, JavaScript, TypeScript, SQL, C++, Java  
**Infrastructure & Data** Elasticsearch, Redis, MongoDB, Supabase, Thrift/gRPC, Message Queues, Data Pipelines  
**Frameworks & Tools** React, Next.js, Node.js, Tailwind CSS, Flask, FastAPI, Git, AWS, Vercel, Claude Code, Codex

## EDUCATION

**University of Waterloo** · Bachelor of Computer Science (Honors) May 2023

## WORK EXPERIENCE

**Software Engineer** · ByteDance (TikTok) · San Jose, CA May 2025 – Present

- Designed an internet categorization taxonomy, classifying **10M+** domains and URLs across threat, policy, and content categories with multi-source intelligence consolidation.
- Scaled URL scanning **50x** to **500+ QPS**, integrating with Sealsuite (VPN/firewall) and TikTok DMs for real-time link scanning.
- Built ingestion pipelines processing **10,000+** daily IOC indicators from third-party threat intelligence sources, automating enrichment and cross-referencing against internal detection systems.
- Engineered feature extraction from browser sandboxing to surface page-level signals across desktop and mobile, feeding a rule engine of **300+** detection rules that flagged multiple cloaked phishing campaigns.
- Built a BI reporting system serving **10+** teams with automated daily/weekly reports surfacing TOS violations, fraud, and illegal activity via regex and AI-processed data.

**Freelance Developer** · RE/MAX Affiliate · St. Catherines, Canada Jul 2024 – May 2025

- Built a real estate dashboard integrating multiple data feeds and rental listings for B2B market insights.
- Architected backend powering property search and valuation over **100,000** live data points.

**Software Engineer** · Tandem Experiences · Toronto, Canada Sep 2022 – Mar 2024

- Led a team of 3 to build an admin portal that streamlined content creation, increasing output by **900%**.
- Built a recommendation engine – closed beta showed **3%** of users reporting noticeable improvements.
- Implemented content generation API leveraging OpenAI and Google Places API for cross-verified results.

## Previous Internships

**Fleet Complete** · Waterloo Spring 2022

Designed mobile testing infrastructure in C# with gRPC, deployed across 5 repositories.

**CoreAVI** · Waterloo Summer 2021

Built a Python cost estimation tool for client pricing, saving ~100 hours per year.

**eSight Eyewear** · Ottawa Winter 2020

Improved AR touchpad latency by **80%** and built manual camera focus for the eSight 4 release.

**Ontario Ministry** · Ontario Summer 2019

Built 20+ smoke and regression tests across 15 platforms for internal government affairs systems.

## PROJECTS

**TimCao.com** Next.js · React · Tailwind CSS · Supabase · Redis · Vercel

Personal playground with **20+** public projects – browser games with global leaderboards, AI design showcases, training modules, media showcase, with **1,000+** monthly visitors.

**Couples Dashboard** Next.js · Supabase · Vercel

Private app with real-time WebSocket chat, shared tier lists, reminders, music player, and restaurant maps.

**Finance Engine** Node.js · SQLite · Claude API

Parses bank PDF statements into a queryable database with AI-powered spending analysis and categorization.