

# William Chang

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## EDUCATION

### University of Waterloo

Waterloo, Canada

*Bachelor's in Honours Mathematics, Combinatorics and Optimization*

*September 2021 – May 2025*

- Relevant Courses: Algorithms & Data Structures, Object-Oriented Design & Programming, Databases, Discrete Optimization, Deterministic OR Models, Coding Theory, Graph Theory, Statistics

## TECHNICAL SKILLS

**Languages:** Python, C++, Javascript, Typescript

**Frameworks & Databases:** NextJS, React, Supabase, Prisma, MySQL

**Developer Tools & Libraries:** Git, GitHub, Selenium, BS4, Shadcn, Pytorch, Pandas, NumPy, Matplotlib

## EXPERIENCE

**Software Engineer & Founder** | *Typescript, NextJS, Supabase, Prisma Scheduler*

May 2024 – Present  
Waterloo, Canada

- Built a full-stack SaaS platform with **NextJS** to help tutors facilitate scheduling and track lesson plans
- Scaled to over 50 active users with a monthly growth rate of **110%** post production deployment
- Increased free-to-premium conversion rate to **25%** through UX improvements and high-impact features
- Developed dynamic front-end interfaces using **Typescript**, **React**, and **Shadcn** modular components
- Optimized performance metrics (**TBT: 0.12s**, **LCP: 1.5s**) via code splitting, lazy loading, and caching
- Designed scalable back-end with **Supabase** and **Prisma** ORM for real-time data, storage, and security
- Integrated **Auth.js** with **NextAuth** for secure, token-based authentication and session handling
- Used **Stripe's** API and webhooks to manage subscription events, billing states, and feature access
- Implemented **Agile SDLC** with unit and functional testing, reducing post-deployment bugs by **80%**
- Automated **CI/CD** pipelines via **Vercel** and **Github Actions**, reducing release times by **50%**
- Designing AI-scheduler with **Gemini** API to automate manual planning time with user-given constraints

**Algorithms & Data Structures/OOP Tutor** | *Python, C++ Private Tutor*

May 2023 – August 2023  
Vancouver, Canada

- Provided lessons in algorithms & data structures and object-oriented programming in **Python** & **C++**
- Created targeted problem sets and coding exercises to reinforce theoretical concepts and coding skills

## PROJECTS

**Quantitative Event-Driven Trading Algorithm** | *Python, Pandas-ta*

December 2024 – Present

- Created a trading algorithm with **Python** using mean reversion strategies on event-driven stocks
- Leveraged Alpha Vantage's APIs to return historical OHLCV data and market news for backtesting
- Yielded a monthly return of **11.48%** from paper trading with over 500 positions
- Synced **IBridgePy** to IB where real-time trades can be actualized with risk management strategies

**League Of Legends Win/Loss MLP Model** | *Python, Pytorch, Pandas, NumPy*

August 2024

- Trained MLP model using Bayesian optimization with **PyTorch** giving an accuracy of 73.07%
- Predicted the binary classification of winning or losing a game in LoL after 10 minutes of in-game time
- Used **Pandas** to scrape information from a dataset of 10,000 games from Kaggle
- Checked results with **NumPy** and **Matplotlib** by using confusion matrices and ROC curves

**Price Tracking Web Scraper** | *Python, Selenium, BeautifulSoup, Pandas*

January 2023

- Implemented a web scraper that tracks and compares product prices on amazon.ca