

Benson Yan

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EDUCATION

University of Waterloo

Bachelor of Computer Science - 3.7 GPA

Waterloo, ON

2023 – 2027

- Courses: Imperative Programming, Object-Oriented Programming, Statistics, Combinatorics, Linear Algebra

EXPERIENCE

Advanced Building Innovation Company

Software Business Engineering Intern

Dec 2024 – Apr 2025

Toronto, ON

- Designed an interactive web application that enables **500+** monthly customers to customize homes through an automatically generated floorplan based on design combinations by mapping CAD objects to SVG format with **PostgreSQL**, **ASP.NET Core**, and **Azure Blob**, eliminating all manually designed floor plans
- Collaborated with architects and structural engineers to save **25+ hours** per CAD project by automating **30+** manufacturing requirements for all housing models by designing a CAD plugin with **C#** and **CADWorks API**
- Eliminated all manual ERP checks to manage health certifications among **50+** employees by automating an email system with **ASP.NET Core**, **Azure Communication Services**, and **Docker** to notify The Health & Safety department

Cornerstone Realty Marketing

Summer Analyst Intern

May 2024 – Aug 2024

Toronto, ON

- Streamlined an existing data analyzing workflow by creating a dashboard that analyzes key performance indicators across **147** Toronto Neighbourhoods with **Python**, **Streamlit**, **Plotly**, and **Matplotlib**, saving business analysts **multiple days** per project and eliminating all data entry errors
- Increased rental income potential by **10%** by designing demographic models, which optimized unit layouts and amenity choices, providing consultants further insights to perform competitive analyses of the rental market
- Delivered data-driven insights on condominium markets with **5+** comprehensive case studies, guiding investment decisions that maximized rental revenues and tenant satisfaction

Waterloo Aerial Robotics Group

Autonomy Software Developer

Sept 2024 – Present

Waterloo, ON

- Enhanced drone landing pad detection to over **85%** accuracy by optimizing **Ultralytics YOLOv8** with inference slicing, improving small object detection and enabling reliable autonomous landings across diverse flying conditions
- Achieved landing accuracy within **0.5 meters** of targeted coordinates, enabling landing pad detection with waypoint navigation and adjustments on drone commands based on real-time **GPS** and **LiDAR** sensor data

PROJECTS

BetUFC | Python, Docker, Google Cloud, scikit-learn, NumPy, TypeScript, Next.js, Flask

Oct 2024 – Present

- Developed a predictive model using **Random Forest**, **Bayes**, **KNN**, and **SVM** to achieve over **89%** accuracy in predicting fight outcomes based on historical data from more than **7,000** UFC fights
- Improved model accuracy by **15%** by implementing data preprocessing techniques with **pandas** and **NumPy**, including handling missing values and feature scaling, and optimizing hyperparameters using **Grid Search Cross-Validation**
- Deployed the predictive model as a **microservice** using **Docker**, **Google Cloud Run**, and **Flask**, enabling real-time predictions with **REST API**
- Hosted the full-stack platform using **Next.js**, **Tailwind CSS**, and **Vercel**, providing an intuitive platform for real-time access to the predictive model and historic predictions

UPenn Chess Club Website | TypeScript, Next.js, PostgreSQL, NextAuth, Drizzle ORM

Nov 2024 – present

- Revamped the University of Pennsylvania Chess Club Website, serving **100+** MAU by improving upload speed and accessibility by **10x** with an admin upload system using **NextAuth**, **PostgreSQL**, and **Drizzle ORM**
- Created a **RESTful API** with **CRUD operations**, using indexing and query optimization for efficient data retrieval and manipulation with **Next.js server actions**, enabling real-time updates for posting, archives, and upcoming events

TECHNICAL SKILLS

Languages: JavaScript, TypeScript, Python, C#, C++, C, Java, HTML, CSS, Bash, SQL

Frameworks & Tools: ASP.NET Core, React, Flask, Express.js, Tailwind CSS, PostgreSQL, MongoDB, Git, Linux, Docker, Kubernetes, Azure, Google Cloud

Libraries: NumPy, pandas, Plotly, Matplotlib, TensorFlow, OpenCV, Ultralytics, Drizzle ORM