

DEREK WANG

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Education

University of Waterloo

Waterloo, ON, Canada

Bachelor of Applied Science in Computer Engineering

Expected Apr 2030

- Relevant Coursework: Fundamentals of Programming, Linear Algebra for Engineering, Project Studio

Work Experience

Youth Badminton Instructor

Mar 2024 – Aug 2025

City of Richmond Hill

Rouge Woods Community Center, Richvale Community Center — Richmond Hill, Ontario

- Analyzed student skill levels and **developed** personalized coaching strategies for **14 beginner to intermediate students** (ages **9–16**), resulting in improved technique and game performance across **8-week terms**
- Designed and **implemented** a comprehensive badminton curriculum focused on **real game situations**, which was adopted by **all** badminton classes at Rouge Woods and Richvale, **improving** student engagement
- Built individual mentorship programs through personalized **feedback** delivery, **optimizing** lesson plans to address specific performance gaps and foster an inclusive learning environment

Projects

Waterloo Aerial Robotics Group | *Github*

Aug 2025 – Present

- Autonomy Team Member for the **UWARG**, competing in the 2026 **National Annual UAS Student Competition**

Fruit Ninja AI | Python | YOLOv11 | *Source Code*

Aug 2025 – Sept 2025

- Architected and **implemented** an automated computer vision pipeline using **YOLOv11** object detection
- Analyzed game mechanics and **built** a comprehensive dataset of **816 images (514 training, 302 testing)**, **optimizing** model performance through strategic data augmentation and validation techniques

TTC Escape | C# | Unity | Git | *Source Code*

July 2025 – Aug 2025

- Analyzed the "Loops" theme challenge and **designed** an innovative puzzle game concept, competing in the 2025 **GMTK Game Jam** with a team of 4 developers
- Developed and **implemented** core gameplay mechanics using **Unity** and **C#**, creating a Toronto Transit Commission-inspired puzzle game featuring **looping** mechanics that enhanced player engagement

WebTyper | JavaScript | HTML | *Source Code*

Mar 2025

- Analyzed web content parsing challenges and **built** an interactive typing game using **Javascript, CSS, and HTML**
- Implemented comprehensive performance tracking system, **developing** analytics for **Words Per Minute (WPM), Accuracy, and total times played**, enabling users to monitor skill improvement over time

Checkmate Robotics Club | C++ | Git | *Github*

Sept 2024 – May 2025

- Analyzed competition requirements and **developed** software solutions as a software team member of Team **16868C Rushdown** for the **VEX Robotics Competition**, earning invitation to the **2025 VRC World Championships**
- Implemented advanced robotics systems using **Okapi PROS Library**, **Odometry** positioning, and **PID Controllers**, **optimizing** robot performance for precise motion control and error handling
- Designed and **refactored** autonomous navigation algorithms, **creating** 15-second match routes and 60-second programming skills routines that achieved **5th place out of 80 teams** at **Provincial Championships**

Dr. X Robotics Academy | Java | Fusion 360 | Git

July 2019 – May 2022

- Analyzed competition challenges and **architected** hardware solutions as a hardware team member of Team **16417 Dr. X Academy** for the **FIRST Tech Challenge**, earning invitation to the **2022 FTC World Championships**
- Designed and **built 8 iterations** of the team's robot, **developing** specialized components including **drivetrain, arm, claw, turret** systems and a **backup robot** for competition reliability
- Implemented autonomous control systems using **Java**, **creating** 30-second match routines with **Dead Reckoning** position estimation and **PID Controllers**, **optimizing** motion control precision and match performance

Skills

Languages: Java, C++, Python, HTML5, CSS, JavaScript, C#, TypeScript

Developer/Engineering Tools: Git, Fusion 360, Unity

Libraries/Frameworks: ReactJS, OpenCV, YOLOv11, Tailwind CSS