

# Dorian Knight

## Final Year Mechatronics & Biomedical Engineering

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🌐 <https://dorianknight.github.io/> 🏠 Greater Toronto Area, Ontario, Canada

## Education

McMaster University, Hamilton, Ontario

September 2020 - April 2026

Bachelor's of Engineering & Biomedical Engineering (B.Eng.BME).

## Experience

Intern Software Developer, L3Harris WESCAM

May 2023 - August 2024

- Lead developer on Python automated build process upgrade, increasing build throughput by 500%.
- Developed C driver to remotely control surveillance camera through CAN bus signals.
- Created 50+ automated pytests leveraging Jenkins and Docker for internally developed company software.

Research Assistant, McMaster Micronano Systems Laboratory

May 2021 - August 2021

- Worked closely with Ph.D. candidates on the electrochemical non-enzymatic detection of glutamate using cyclic voltammetry.
- Published research in Biosensors Journal. [\[link\]](#)

Waste Diversion Manager, Halton Environmental Network

June 2020 - August 2020

- Spearheaded the *Pop-up Clean-ups* initiative and oversaw 20+ clean-ups around Oakville in less than 4 months.
- Developed automated registration system using JavaScript, Google Forms, Google Sheets and Gmail to handle the processing of 100+ applications.

1360 Orbit Robotics, FIRST Robotics

September 2017 - March 2020

- Advanced to world championships in 2018 and 2019.
- Worked as part of the embedded coding team.
- Volunteered at community outreach events to promote STEM education.

## Skills

Software Development	C, C++, C#, Python, Java, Bash, Linux, HTML, CSS, JavaScript, $\text{\LaTeX}$
Developer Operations	Jenkins, Docker, Pytest, Git, SVN, Jira
Embedded Systems Communication	CAN, SPI, UART, I2C, RS232, RS422, MIL-STD-1553b
Simulation and Modeling	Matlab, Simulink, NI Multisim, FlexPDE, Inventor
Control Systems	PID

## Awards and Distinctions

High school Valedictorian	2020
Thomas Blakelock Student of Excellence: Sole Blakelock student to receive excellence distinction	2020
McMaster Research Experience Award: Research scholarship	2020
McMaster President's Award	2020
McMaster A.G. Reilly Scholarship	2020
CHS Academic Award Scholarship	2020
Tom McNaught Community Service Award: 1350+ community service hours	2019
Academic excellence award: For top 3 GPA	2018/19

## Projects

Application Specific Instruction Set Processor – Embedded Systems Development II Winter 2025

- Built and deployed custom instruction set for controlling a stepper motor on Cyclone V SoC FPGA using the Quartus IDE
- Designed and implemented custom FSM controller and datapath in Verilog.

## Projects (continued)

**Rate Adaptive Pacemaker** – Software Development

Fall 2022

- Built multimode, rate adaptive pacemaker using **Simulink** and **Stateflow** on **NXP FRDM-K64F**. [\[link\]](#)
- Specified **formal requirements** using **Requirements Toolbox** in Simulink.
- Built companion app in **tkinter** in **Python** to control and monitor pacemaker over serial connection.

## Extracurricular Experience

**Embedded Systems Design, McMaster Formula Electric**

October 2020 - September 2021

- Worked within team to draft, implement and test PWN and SPI libraries.

**Youth Stakeholder, Halton Environmental Network**

June 2019 - March 2020

- Led conference with leadership team, inspiring **200+** youth to implement **50+ environmental sustainability projects** providing a projected carbon footprint reduction of **20.3 metric tonnes**.
- Won **"most innovative"** for automated sensor aquaponics system project out of **50+ competitors**.

**Executive, Junior Optimist International**

September 2018 - June 2020

- Helped lead **15+ community service events** ranging from barbecues to outdoor book sale festivals.

**Chapters West Regional Lead, Tech Under 20**

May 2018 - June 2020

- Oversaw management of TU20 program delivery in all schools within the **"western"** district, directly representing **50+ student members**.
- Developed a management system using **Google App Scripts** to track and increase productivity for a team of **20+ students**.
- Created all programming for the inaugural **"March Break Program"**, as a response to **COVID-19** in-person event uncertainty.
- Led my own chapter at Blakelock High School with **20+ participants**.
- Created engaging curriculum instructing concepts in business, technology and entrepreneurship for students in grades 9 through 12.

**Student Body Co-Prime Minister, Blakelock Student Council**

September 2016 - June 2020

- Lead a focused team of 10 dedicated student leaders to organize **15+** student-run events from school dances to blood drives.
- Ran for and won elections in all four years (Positions: Grade 9 rep, Grade 10 rep, Account Executive, Co-Prime Minister).

## Volunteer Experience

**Blakelock Representative, MPP Steven Crawford Youth Council**

June 2019 - June 2020

- Advocated for educational reform on the provincial level to benefit students across Ontario.
- Visited Queen's Park to discuss the future of education with then Minister of Education *Hon. Stephen Lecce*.

**Lead Morning Announcer, Thomas A. Blakelock**

March 2018 - March 2020

- Delivered Blakelock's morning announcements through the school intercom to **1000+ students**.
- Built a sense of shared community through hand-picked daily inspirational quotes.

**French horn, Piano and Violin, Blakelock Music Ensembles**

September 2016 - June 2020

- Played French horn in Wind Ensemble, winning gold in the Baldwin Conservatory Invitational at Carnegie Hall.
- Advanced to nationals in both Wind Ensemble and Jazz band, winning gold and silver respectively.
- Performed in various small chamber music groups for percussion, violin, French horn, and piano.

**Volunteer Camp Counselor, Town of Oakville + Oakville YMCA** August 2016 - August 2019

- Assisted other camp counselors and camp directors in daily camp operations.
- Led fun and interactive games to ensure that all campers enjoyed and felt included.
- Specialized in helping campers with special needs and behavioural challenges.