BADRI *WIDAATALLA*

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SKILLS

- C | C++ | Python | MATLAB | Java | Java Script | Verilog | Nios II Assembly | Git | AutoCAD
- ModelSim | LTspice | WordPress | Visual Studio Code | NetBeans | Docker | Raspberry Pi | ROS | Intel Quartus | Game Development
- OOP | ZEBRA | Frontend | Glade | Backend | Web Design | Microsoft Excel | English, Arabic, French – *All student proficiency or above*

EXPERIENCE

Project Leader
Algorithm Developer   *PlanMyDay GIS*   *Toronto, ON*   **01/2024 - 04/2024**

- **Led a team** of 3 Computer Engineering students in **developing a day planning GIS** software using **C++** and **Glade Interface Designer**.
- The **OpenStreetMap API** was used as a database to provide some additional information on the map.
- Implemented the **A* Algorithm** using an **aerial time heurestic** to find the guaranteed shortest path between two points on the map.
- Implemented the **Dijkstra algorithm** to help solve a version of the **Travelling Salesman Problem** relevant to day planning.
- The efficiency of the algorithms allowed for a **<0.1s redraw time** and **17s Tokyo loading time**, that put the PlanMyDay GIS in the **92nd percentile of responsiveness** for similar GIS softwares.

Software Developer   *Fruit Ninja Design Project*   *Toronto, ON*   **03/2024 - 04/2024**

- Developed a **VGA display implementation of Fruit Ninja** on a **DE1_SoC** processing board using the **C** and **Nios II Assembly** programming languages as part of a computer organization course final project.
- Used **object oriented programming** to manage several different fruit/bomb entities and the knife cursor on the screen at a given moment.
- Developed **pixel based collision detection algorithms** between entities to keep track of score and lives.
- Used **DE1_SoC interrupts** to manage **PS/2 mouse input**, and play an explosion or chopping sound when a collision occurs.
- The Fruit Ninja game was **ranked 1st in the entire class** by the teaching assistants, and received bonus marks due to its complexity.

RnD Software Developer   *University of Toronto Aerospace Team*   *Toronto, ON*   **09/2023 - 04/2024**

- Programmed software for the Unmanned Aerial Systems (UAS) division of the University of Toronto Aerospace Team (UTAT) on the subteam dedicated to developing a drone to compete in the **Aerial Evolution Association of Canada (AEAC) UAS competition**.
- Developed a **Python** program on a **Raspberry Pi** computer to facilitate the antenna tracking algorithm used to align a radar dish with the reception antenna of the drone while in flight.
- Implemented a reset sweep through the full range of motion of the radar dish to relocate the drone if connection is lost. While implementing this sweep I also developed a way to **reduce the sync lag** after locating the drone from **6 seconds to 4 seconds**.

Air Cadet - 598 Sabre Squadron   *Royal Canadian Air Cadets*   *Cobourg, ON*   **10/2017 - 06/2022**

- Established a **leadership role** within the Squadron as the **Training Warrant Officer (TRGWO), Drill Team Commander, and Honour Guard Captain**. As the TRGWO, facilitated the **teaching of over 40 air cadets** for over 3 years, including during the COVID-19 pandemic.
- Choreographed several military **drill routines** such as the one performed at the **2019 Baltimore Military Tattoo** as Drill Team Commander
- Through Air Cadets developed several **transferable collaborative skills** through the disciplined, team building nature of the program, while also developing a **passion for aviation** through opportunities such as the **Glider Pilot Program**.

Senior Dairy Clerk   *David's No Frills*   *Cobourg, ON*   **09/2020 - 06/2022**

- Worked as a **part-time clerk** in the Dairy and Frozen departments. **Trained 7 new employees** in the Dairy department with a **100% training exit test pass rate**.

EDUCATION

Bachelor of Applied Science   *University of Toronto*   *Toronto, ON*   **07/2022 - Current**

- Major in Computer Engineering
- Second year student; expected graduation 05/2027

High School Diploma   *Cobourg Collegiate Institute*   *Cobourg, ON*   **09/2018 - 06/2022**

- Graduated with International Baccalaureate Diploma

AWARDS

- **Lord Strathcona Medal**: Most prestigious award that an Air Cadet may receive. Awarded in commendation of astounding leadership **(05/2021)**
- **Winkelman Scholarship**: Scholarship awarded to up to 5 University of Toronto students in recognition of academic merit **(05/2022)**
- **Entrance Scholarship for Black Students:** Awarded to engineering students at the University of Toronto on the basis of academic excellence **(04/2022)**
- **Schulich Scholarship Nominee:** Nominated to apply for the Schulich Scholarship by Cobourg Collegiate Institute (1 nominee per school) **(02/2022)**