Antoine Vilain

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EDUCATION

University of Toronto
Engineering Science – Electrical and Computer + Co-Op | May 2025
3.91/4.0 GPA
Winner of a UofT Scholar admission award - $7500

Oakville Trafalgar High School | June 2020
Class of 2020 Valedictorian
Highest graduating average

RELEVANT COURSES

Intro to Computer Programming – 94%

Fundamentals of Electric Circuits – 95%

Computer Algorithms and Data Structures – 100%

Digital and Computer Systems – 95%

Electricity and Magnetism – 91%

Computer Organization – 100%

Electronics – 92%

Systems Software – 94%

SKILLS

`Python` `C` `C++`
`Java` `JavaScript`
`Tcl` `Verilog` `Perl`
`ARM + Nios II Assembly`
`Waveform analysis`

LANGUAGES

- English - fluent
- French - fluent
- Spanish - intermediate

WORK EXPERIENCE

Intel / Altera | Programmable Solutions Group   May 2023 – June 2024
- Developed a prototype driver to drive the CSR using C code run from a Nios V processor on the FPGA, and presented this driver to the entire PSG department where the project was approved for internal release.
- Improved the MACsec encryption IP by fixing improper packet drop behaviour, improving resets for simulator compatibility, adding new cdc test configurations, and removing ethernet reliance of the example design to greatly improve simulation speed.
- Successfully completed the Advanced FPGA Optimization Bootcamp through exercises such as reducing the LUT depth of a 64-bit counter from 5.7 to 2.0

Dana Automotive | Thermal Products Division   May 2022 – July 2022
- Tested and analyzed heat exchangers to find common failure modes and ultimately recommend potential improvements to the heat exchangers.
- Designed and began implementing a cleanliness testing apparatus for transmission oil coolers, successfully passing the first iteration of testing.

Town of Oakville | Turf Department   May 2021 – Aug 2021
- Collaborated in a four-person team to efficiently mow a set of parks while minimizing potential hazards and complications.

Jubilee Market | Produce Department   Jan 2019 – Aug 2020
- Continuously prioritized between customer assistance and restocking shelves, while helping the rest of the team as needed.

PROJECTS

Restify Website (Python Django, HTML, CSS, Javascript, Rest API)
- Developed a simplified airbnb-like website in a team of 3, implementing both the front-end and the back-end.

Video games: Pacman (C++), Snake & Space Invaders (Java), Flappy Bird (Turing)
- Implemented interactive video games by animating graphics libraries (OpenGL in C++, AWT in Java) using loops and delays while continuously tracking user inputs and changing game state variables accordingly.

Seam Carving (C)
- Used dynamic programming to reduce images by repeatedly identifying and removing the seam, then outputting the modified bitmaps to new image files.

Miniature Loom | design project
- Designed and constructed a miniature loom by using an Arduino nano to move pedal-operated shafts based on user-operated buttons, which involved coordinating a 6-person team to design within strict timelines and on budget.

EXTRA-CURRICULARS

Varsity Sailing | Social Coordinator - University of Toronto
- 2024 Male Sailor of the Year and regatta winner at the 2024 UPenn Invitational.

Intramural Soccer | Team Captain - Faculty of Engineering
- Managed a team of 15+ players. Created gameplans and organized substitutions. Dealt with registration, scheduling, and on-field disputes.