




Louis Hildebrand

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Education

McGill University MSc Electrical Engineering *Winter 2024–Winter 2026*

- 4.0/4.0 CGPA
- Thesis: “A Minimal Intermediate Language for Generating Streaming Accelerators”
- Supervised by Prof. Christophe Dubach (Compilers and Synthesis Lab)

McGill University B. Software Engineering *Fall 2020–Fall 2023*

- 4.0/4.0 CGPA
- Dean’s Honour List: 2020/2021, 2021/2022, 2022/2023
- British Association Medal (highest final exam grades)

John Abbott College Honours Science *Fall 2018–Winter 2020*

- Valedictorian
- Dean’s List: Fall 2018, Winter 2019, and Fall 2019

Projects

Sirop (*Scala app; master’s thesis project*)

- Programming language and optimizing compiler
- Generates VHDL description of hardware accelerator from high-level source code

Twisty Timer (*Java Android app*)

- Contributed new features to existing speedcubing app, e.g., a practice mode for blind-folded solving

SH Prediction (*Python command-line app*)

- Predicts players’ roles in the social deduction game “Secret Hitler”

Pocket cube solver (*Arduino project*)

- Robot to solve a $2 \times 2 \times 2$ Rubik’s Cube
- Presented at the 2018 Montreal Regional Science and Technology Fair
- Awarded the Intel Excellence in Computer Science Award and the McGill University School of Computer Science (Robotics) Award

Skills

- **Formal languages:** Scala, Python, VHDL, C#, SQL (MS SQL Server, PostgreSQL), Java, C, Assembly (ARMv7, MIPS), Rust, OCaml, R, JavaScript, HTML, CSS
- **Natural languages:** English, French, Afrikaans
- **Frameworks:** Spring Boot, .NET (Framework, Core), Django, Vue.js
- **Other tools:** Git, GitHub (Actions, Projects, Wiki, etc.), Bash, Gradle, JUnit, L^AT_EX

Work Experience

MDA Engineering Intern

Summer 2023

- Implemented new features and fixed bugs in web services using ASP.NET MVC, Razor Pages, Telerik, and Kendo UI
- Optimized SQL queries and stored procedures

123Loadboard Backend Intern

Summers 2021, 2022

- Independently implemented new microservices given a predefined specification
- Fixed bugs in and added new endpoints to the main API

Pierrefonds Day Camps Counselor

Summers 2017–2019

- Supervised groups of children aged 5–12
- Worked in both French and English

McGill Teaching Assistant Experience

Computer Organization (ECSE 324)

Fall 2025

- Delivered tutorials on computer organization (e.g., interacting with devices via memory-mapped I/O)
- Assisted students with lab work (writing C and ARM assembly programs)
- Answered students' questions on the online discussion board
- Graded assignments

Model-Based Programming (ECSE 223)

Winter 2025

- Delivered weekly tutorials on model-based programming (e.g., UML class and state diagrams, Umple) and other tools (e.g., Git, JUnit, Gradle, Cucumber)
- Answered students' questions on the online discussion board
- Helped prepare assignments

Intro. to Software Engineering (ECSE 321)

Fall 2022–Winter 2025

- Delivered weekly tutorials on developing a fullstack web app with PostgreSQL, Spring Boot, and Vue.js
- Held weekly office hours and answered questions on the online discussion board
- Graded deliverables and tests, helped write exam questions

Ordinary Differential Equations for Engineers (MATH 263)

Fall 2021

- Delivered weekly tutorials on differential equations, including a summary of lecture content and practice problems
- Answered students' questions by email

Selected Courses

Language-Based Security (COMP 523)

Winter 2025

- Formally studied the syntax and semantics of programming languages and type systems
- *Project*: [chick](#), a type checker for a dependently-typed language

Compiler Design (COMP 520)

Winter 2024

- Learned to implement a full compiler, including parsing, semantic analysis, register allocation, and code generation
- *Project*: compiler targeting MIPS assembly from a subset of C with pointers, arrays, structs, functions, “while” loops, “if” statements, etc.

Microprocessors (ECSE 444)

Fall 2023

- Programmed an STMicroelectronics B-L4S5I-IOT01A board using C and ARMv7 assembly
- *Project*: memory game that plays a series of tones (high or low), detects user inputs via accelerometer (up or down), and provides feedback via a speaker

Parallel Computing (ECSE 420)

Fall 2023

- Learned GPU programming with CUDA
- *Project*: CUDA implementation of a general 2D cellular automaton simulator, achieving $590\times$ higher throughput than an equivalent sequential implementation in C

Operating Systems (ECSE 427)

Fall 2022

- Learned fundamental OS concepts: processes, threads, file system structures, memory management, etc.
- *Assignments*: implemented a simple shell, threading library, and file system (all in C)