Louis Hildebrand

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Education

McGill University MSc Electrical Engineering *Winter 2024–Winter 2026*
- Supervised by Prof. Christophe Dubach (Compilers and Synthesis Lab)
- Thesis: "A Minimal Intermediate Language for Generating Streaming Accelerators"
- 4.0/4.0 CGPA

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*)
- Programming language and optimizing compiler
- Generates VHDL description of hardware accelerator from high-level source code
- Master's thesis project

MiniC compiler (*Scala app*)
- Compiler for a subset of C with pointers, arrays, structs, functions, while loops, if statements, etc.
- Includes parser, semantic analyzer, register allocator, and backend for MIPS assembly

Twisty Timer (*Java Android app*)
- Contributed new features to existing speedcubing app, e.g., a practice mode for blindfolded solving

chick (*OCaml library*)
- Type checker for a dependently-typed list language
- Developed for COMP 523: Language-Based Security

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, LaTeX

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

ECSE 324: Computer Organization *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

ECSE 223: Model-Based Programming *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

ECSE 321: Introduction to Software Engineering *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

MATH 263: Ordinary Differential Equations for Engineers *Fall 2021*
- Delivered weekly tutorials on differential equations, including a summary of lecture content and practice problems
- Answered students' questions by email