Pascal Lasnier

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EDUCATION

2024 – present — **Dept. of Computer Science & Technology, University of Cambridge** (MPhil)
Advanced Computer Science MPhil student

2020 – 2024 — **St. Catharine's College, Cambridge** (Undergraduate)
Engineering, Class I BA (Hons) & MEng with Merit
Aerospace and Aerothermal Engineering
Mechanical Engineering

2018 – 2020 — **Richard Huish College, Taunton** (A-Levels)
Mathematics (A*) Computer Science (A*) Physics (A*)
Further Mathematics (A*)

2013 – 2018 — **Bishop Fox's School, Taunton** (GCSEs)
7 Grade 9s (incl. Mathematics, Physics, Computer Science, and English Language)

PROFESSIONAL EXPERIENCE

Siemens Cambridge Software Internship | 2023 | C++, Rust (Wasm), TypeScript

- 12-week summer internship at Cambridge office;
- Contributed to Siemens NX C++ codebase;
- Worked with dev tools team:
  - Wrote VSCode extensions to integrate with source control;
  - Implemented asynchronous client-server system in Rust using WebSockets.

PROJECT EXPERIENCE

MPhil Computer Science Project (*Ongoing*) | 2024 – 2025 | HOL4

- Individual project for MPhil;
- Building verified compiler for Scheme using CakeML:
  - Writing semantics for translation between Scheme subset and CakeML;
  - Includes dynamic typing and first-class continuations, novel contributions to verified compilation;
  - Implementing and verifying translation in HOL4.

4th year Engineering Project | 2023 – 2024 | Python

- Individual project for MEng;
- Achieved First Class;
- Modelling of 1-D thermoacoustics networks:
  - Mathematical analysis of complex thermodynamics problem;
  - Involves constructing system as linear algebra problem using finite differences;
  - Implemented as Python API to generate solutions from thermoacoustic configuration and assumed partial solution.

2nd year Engineering Robot Project | 2021 | Arduino C++ | *github.com/pylasnier/idp205*

- Software lead of six-person team group project to design an autonomous robot;
- Task involved navigation within an arena to search and collect small dummies;
- Developed an understanding of the limitations of microcontrollers and how to work around them, especially memory constraints;
- Learnt alternatives for debugging a microcontroller system when breakpoints, watches, and other debugging features are not available.

A-Level Computer Science NEA | 2019 – 2020 | C# | *github.com/pylasnier/functional-studio*

- Designed an explicitly simply typed pure functional programming language, featuring:
  - functions as first-class citizens and higher-order functions,
  - selection and recursion,
  - a basic type system including integers, floats, and bools (arrays are possible as indexing functions, but no polymorphism or type constructors other than function types);
- Developed an intermediate representation (IR) that implements this language;
- Built a translator, including a tokeniser and a parser that produce the described IR, featuring a rich error system including type checking;
- Packaged the whole interpreter with a simple IDE built using Windows Forms.

EXTRA-CURRICULAR EXPERIENCE

St. Catharine's College Badminton Club Captain | 2023 – 2024

- Ensured smooth-running of regular college training sessions;
- Fostered inclusive and competitive environment for players to develop and grow;
- Primary responsibility for club finances and competitive fixtures:
  - Managed club budget ensuring responsible consumption and spending on shuttles and restrings;
  - Organised weekly fixtures for intercollegiate league and tournament matches;
- Oversaw success of the college team in intercollegiate competitions:
  - Maintanence of high league division (2nd of 7) with an almost entirely fresh roster of players;
  - High placements in the annual team elimination doubles tournament (Cuppers) – semi-finals in the mixed discipline, and champions in the women's discipline.

ACTIVITIES AND INTERESTS

Languages	English (native), French (proficient, GCSE Grade 9)
Computing	Linux (NixOS) user, command line-confident Programming: Rust, C(++), Haskell, C#, Python
Music	ABRSM Grade 6 Piano (Merit) ABRSM Grade 5 Music Theory (Merit)
Sports	Badminton (University Development Squad and college captain) Olympic-style Weightlifting
Extra-curricular	Duke of Edinburgh Award: Bronze (2019), Gold (ongoing) Volunteer at local library (Taunton)

Referees available on request