Edmund Goodman

hello@edmundgoodman.co.uk | linkedin.com/in/EdmundGoodman | github.com/EdmundGoodman

Education

University of Cambridge Oct. 2024 – Jun. 2025
Advanced Computer Science MPhil; Distinction *Cambridge, UK*

University of Warwick Sept. 2020 – Jun. 2024
Computer Science BSc (Hons) with intercalated year; First Class Honours *Coventry & St Albans, UK*

The Perse Sixth Form Sept. 2018 – Jun. 2020
A-levels in Maths, Further Maths, Physics & Computer Science; Academic scholarship *Cambridge, UK*

Experience

Apple Inc. | CAD Design Verification Engineer Aug. 2025 –
- Building software tools and infrastructure for the design verification of hardware.

Apple Inc. | CAD Design Verification Intern Jul. 2022 – Jun. 2023, Jun. – Sept. 2024
- Intercalated year in industry and internship at the UK Design Centre for Apple Silicon.
- Built software tools and infrastructure for the design verification of hardware.

University of Warwick Computing Society | Academic Coordinator Sept. 2023 – Jun. 2024
- Organised and delivered technical talks, introductory workshops, and revision sessions – including `git` Good, CS260 algorithms, and award-winning talk The Mathematics of Lasagne.

University of Warwick iGEM team | iGEM Team Member Feb. – Sept. 2021
- Led software for the international gold medal winning Warwick team for the iGEM synthetic biology competition.
- Architected and implemented a stochastic model of the spread of antibiotic resistant pathogens which was nominated for best model (2021.igem.org/Team:Warwick/Model), and created the wiki website showcasing the team's work.

HUBER+SUHNER Polatis | Software Engineering Intern Jul. – Sept. 2020
- Performed a major version bump of Python for fibre-optic switch test harnesses.
- Refactored the VBA backend of a corporate planning Excel spreadsheet.

Projects

Master's Thesis Dec. 2024 – Jun. 2025
- Wrote a dissertation titled "Performance and Dynamism in User-extensible Compiler Infrastructures", co-supervised by Sasha Lopoukhine and Dr Tobias Grosser, achieving a Distinction grade of 83%.
- Quantified and optimised the xDSL compiler framework's performance in comparison with MLIR, yielding a 10× improvement and characterising the suitability of dynamic languages for performant compiler implementations.
- Built ByteSight, a novel performance profiler operating at the bytecode level for the CPython interpreter.
- Interest in performance results led to merging benchmarks for xDSL into Python's official benchmarking suite.

Bachelor's Thesis Sept. 2023 – Apr. 2024
- Wrote a dissertation titled "Assessing the suitability of Rust for performant and productive implementations of HPC codebases", achieving a High First Class grade of 87%.
- Built HPC MultiBench, "a tool to run, aggregate, and analyse metrics about HPC batch compute jobs via Slurm from a YAML format", and used it to run performance experiments on a HPC mini-app translated from C++ to Rust.
- Presented a short-format talk derived from the dissertation as part of the P3HPC workshop.

MiniC Compiler Sept. – Dec. 2023
- Implemented an LLVM-backed compiler in C++ for a subset of the C language, achieving 98% – the highest mark in the cohort. Transformed provided grammar to $LL(k)$, hand-crafted recursive descent parser into custom AST data structure, and code-generated into LLVM IR with a focus on both correctness and ergonomic error messages.
- Created open-source extension to provided testing infrastructure, including a novel approach to test error messages.

Technical Skills

Languages : Python, Rust, Kotlin, Bash/Zsh, SQL, Java, C, C++, Haskell, Matlab, HTML & CSS, TypeScript, Prolog
Technologies : Git, Kubernetes, Docker, LLVM, MLIR, xDSL, Cadence vManager, Cadence Indago, TeamCity, GitLab CI, GitHub Actions, OpenMP, MPI, Slurm, PostgreSQL, FastAPI, Pydantic, Linux