

Alfie Richards

SOFTWARE ENGINEER · COMPUTER SCIENTIST · MATHEMATICIAN

☎ (+44) 7715 879224 | ✉ main@alfierichards.com | 🏠 www.alfierichards.com | 💻 [alfgalf](#) | 🌐 [alfie-richards2](#)

Experience

Wolfram Research

Oxfordshire, UK

SOFTWARE ENGINEER INTERN & COMPILER DEVELOPER

Jun. 2022 – Oct. 2022

- Joined the small team developing the experimental compiler for Wolfram Language
- Contributed by developing a pass optimizing operations on immutable data structures and adding to the standard library
- Gained experience with LLVM, compiler development, and language tooling as well as learning how to work collaboratively in a large evolving code base

University of Bath, Computer Science Department

Bath, UK

OUTREACH AMBASSADOR, TUTOR, AND TEACHING

Oct. 2019 – Present

- Developed and ran [Technical Labs](#), a series of sessions for undergraduate teaching software development tooling
- Tutored Data Structures and Algorithms and Functional Programming modules for the university

Backslash Builds

Bath, UK

SOFTWARE DEVELOPER AND WEB DEVELOPER

Jun. 2021 – Oct. 2021

- Worked in a small team developing web applications for clients.
- Learnt about architecting systems, code maintenance, and working to specifications.

Skills

Programming	Rust, C/C++, Haskell, Java, Swift, ZSH, MacOS, Debian, Web Development, Python,
Computer Science	Compilers, Complexity Theory, Networking, Programming Language Design
Mathematics	Group Theory, Topology, Category Theory, Programming Language Semantics, Formal Proof Systems

Education

University of Bath

Bath, UK

MSC IN COMPUTER SCIENCE AND MATHEMATICS

Sept. 2019 – Present

- Master's dissertation formalizing Incorrectness Logic in Lean (proof verification system)
- Undergraduate dissertation developing a functional, interpreted, embeddable language
- Modules: Compilers, Semantics of Programming Languages, Data Structures and Algorithms, Advanced Computer Graphics
- Courseworks: compiler for a subset of C, ray tracer, group courseworks developing Android apps and ML models for classifying BSL.

Lord Williams School

Thame, UK

A-LEVEL'S (3 × A* AND 1 × A) AND GCSE'S

Sept. 2011 – Jun. 2019

Additional Experience

Personal projects

UK

TEAM MEMBER

2014 – Present

- iPadOS flash card app
- Algorithm visualizations in Processing
- Personal [website](#)

Hackathons

Bath Hack, Hack Exeter, Oxford Hack

TEAM MEMBER

2020, 2021, 2022

- Won the embedded systems track at Bath Hack 2022
- Won Best Use of a URL track at Oxford Hack 2020
- Competed in Hack Exeter 2021

Bath Computer Science Society and Bath Students Union

University of Bath

COMMITTEE MEMBER AND ACADEMIC REPRESENTATIVE

Sept. 2020 - Jun. 2022

- Committee member for Bath Computer Science Society.
- Developed websites and projects for BCSS, including a quiz system and games.

Awards

2021	Netcraft prize for outstanding results,	Bath, UK
2019	British Mathematics Olympiad, Distinction	UK
2017 – 19	Cayley, Maclaurin and Hamilton Olympiads, 2 × Merit and Distinction	UK