

John Kelly

<https://johnk.dev> | johnharrykelly@gmail.com | [linkedin.com/in/johnharrykelly](https://www.linkedin.com/in/johnharrykelly) | github.com/john-h-k

EDUCATION

Imperial College London

Bachelor of Engineering in Electronic & Information Engineering (EECS)

London, England

Sep. 2023 - July 2026

Magdalen College School

A-levels in Maths (A), Computer Science (A*), and Physics (A*)*

Oxford, England

Sep. 2015 - July 2022

ACHIEVEMENTS

Microsoft Most Valuable Professional Award Nomination

2022

Did not continue with nomination due to continuing education rather than entering work

.NET Foundation Voting Member

2020

World's youngest member at time of acceptance (age 16)

GCHQ CyberDiscovery Program

2019

Attended to the in-person CyberDiscovery Elite camp as part of the only team that successfully cracked the final challenge

Oxford University Computing Challenge

2018

Top 15 result out of over 10,000 international participants

EXPERIENCE

Software Engineer - Intern

June 2021 – Aug. 2021

Hero Health Software

Oxford, England

- Migrated a background-job service between frameworks
- Designed, implemented, and tested code & infrastructure for card-reader payment systems

Software Engineer - Placement Year

Sep. 2022 – Sep. 2023

Hero Health Software

Oxford, England

- Led a multi-team project over 6 months, integrating a new clinical system into the application, spanning multiple languages, frameworks, and services
- Re-designed the CI/CD pipeline, cutting test times from 90 minutes to 15 minutes and reducing cost
- Built an extensible analytics API & dashboards to improve internal product monitoring
- Optimised high-throughput data processing services, cutting median execution time from 2 hours to under 4 seconds

Open Source Work

Microsoft, Rust Foundation, & others

- Optimised array & slice codegen, introduced new correctness lints, and improved the macOS build process for the Rust compiler
- Updated, improved, and introduced the official DirectX 12 documentation across 50+ pages
- Implemented the TRY302 correctness item for the Ruff python linter
- Fixed bugs across a range of projects, including the Stripe CLI, Ruby on Rails, Rubocop, and the C# compiler

PROJECTS - See 'Pinned' section of GitHub profile

MathSharp | C#, x64, SIMD

Oct. 2019

- The fastest SIMD-focused linear algebra library for C# at time of release
- At time of release, offered 40-75% speed improvements over the .NET Core library & other alternatives
- Utilised x64 & AArch64 architecture extensions including FMA, SSE, AVX, and NEON
- Developed micro-benchmarking and correctness suites for a large array of floating-point math benchmarks
- Gained over 600 stars on Github & over 7,000 downloads

Voltium | C#, DirectX, Metal, 3D Graphics

Ongoing

- Lightweight, cross-platform render engine focusing on performance and usability
- Developed a system to allow remote rendering & debugging using a proprietary command buffer system
- Created a render graph & ECS framework to allow efficient scheduling & execution of rendering

Sudoku Solver | Python, C, Graph Theory

June 2022

- Wrote Python & C implementations of traditional Sudoku solver algorithms to demonstrate static vs dynamic language performance differences
- Created a simple CLI to demonstrate performance by algorithm & language