John Kelly

https://johnk.dev | johnharrykelly@gmail.com | linkedin.com/in/johnharrykelly | github.com/john-h-k

EDUCATION

Imperial College London London, England
Bachelor of Engineering in Electronic & Information Engineering (EECS) Sep. 2023 - July 2026

Magdalen College School Oxford, England
A-levels in Maths (A*), Computer Science (A*), and Physics (A*) Sep. 2015 - July 2022

EXPERIENCE

Software Engineer - Intern July. 2024 – Aug. 2024
Marshall Wace Asset Management Oxford, England
- Incoming Summer 2024

Software Engineer 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, including Rust, GraphQL, ProtoBuf, and TypeScript
- Upgraded language & frameworks across 2 major versions, involving changes to over 500 files and 20 thousand lines of code
- Re-designed the CI/CD pipeline, cutting test times from 90 minutes to 15 minutes and reducing cost
- Optimised high-throughput data processing services, cutting median execution time from 2 hours to under 4 seconds

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

Open Source Work
.NET JIT Compiler, Rust Compiler, ComputeSharp, & Others
- Contributed to compilers and low-latency open-source software in Rust, C++, & C#

ACHIEVEMENTS & AWARDS

First Place Undergraduate (3rd overall) - Imperial Algorithmic Trading Competition 2023
Team of 2 - data modelling & research challenge by QRT

Microsoft Most Valuable Professional Award Nomination - Youngest Ever Nominee 2022
"Recognizes exceptional community leaders for their technical expertise, leadership, speaking experience, online influence, and commitment to solving real world problems"

.NET Foundation Voting Member 2020
World's youngest member at time of acceptance (age 16)

UKMT Senior Maths Challenge - Gold Award 2020

GCHQ CyberDiscovery Program 2019
Attended to the in-person CyberDiscovery Elite camp as part of the only team that successfully cracked the final challenge

Summerton Prize for Computing - Magdalen College School 2019 & 2022
Received award twice for academic excellence in Computing

Top 15 in Oxford University Computing Challenge 2018
Result out of over 10,000 international participants

Bebras Computational Thinking Challenge - Gold Award 2018 & 2019
Achieved maximum score possible both years

Perse Coding Cup - Distinction 2019

PROJECTS - *See 'Pinned' section of GitHub profile*

JCC | *C, Compilers, Optimisation* Nov. 2023 - Ongoing
- Work-in-progress C11 compiler with zero 3rd party dependencies
- Pure C11 compliant code with a hand-written lexer, parser, and native ARM64 machine code backend
- Utilises SSA intermediate representation & linear-scan register allocation techniques for codegen

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
- Gained over 600 stars on Github & over 7,000 downloads