

## Tobi Oloke

Software Engineer // Haskell Enthusiast

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### Summary

Highly motivated and results-oriented Software Engineer with a strong foundation in object-oriented and functional programming (Python, C, Haskell). Proven ability to learn new technologies quickly and apply them to complex projects with a strong appreciation for the scientific approach to hypothesising, implementing and testing. Passionate about building robust tooling for 3D art and video game production.

My ongoing hobby project is building the game Snake in Haskell featuring: terminal-user interface, global and local leaderboards, score validation, end-to-end encryption, levels and audio. This is in order to consolidate my Haskell and app development knowledge.

### Recent Relevant Work Experience

#### Software Engineer @ Roke Manor Research (September 2022 - Present)

- I finished the graduate scheme in September 2024.
- Projects I have so far contributed to:
  - Contributed to a natural language processing platform for the direction of automated agents by writing underlying actions specs and algorithms to carry out instructions. (04/24-Present)
    - The hierarchical planning model is planned to leverage constraint programming to dynamically and automatically generate satisfactory plans from text input which does not violate constraints and uses existing instructions.
  - Created Python, bash and C-based tools for the static analysis of applications which dropped analysis times by more than 50%. (01/24-04/24, 06/24-Present)
  - Developed a prototype real-time “Predictor” for mobile telecommunications messages types based on Haskell Arrow design but in Python. The goal was to figure out which message would come next in a sequence of messages like “Predictive text”. In reality, it was effectively a directed graph which kept a short-term history of the seen messages and filtered eligible nodes. (12/23 - 01/24)
  - Assisted in the creation of a semi-automated system for the provisioning and command and control of unix devices using Ansible(10/23-11/23).
  - Worked with C, Typescript and Python to develop a suite of tools for monitoring embedded networking firmware with an eye towards modifying and augmenting capabilities.
  - Prototyped an “immune system” for linux devices by creating a database of syscall sequences for normal behaviour and testing against non-standard behaviour. This also leveraged my biological background. (09/23 - 10/23).
  - Designed and implemented modules for a suite of capability for interlinked programs and capabilities mainly in Python. (03/23 - 09/23)
  - Enabled custom embedded linux on devices and designed capability for them. (01/23 - 04/23)
  - Investigated smart contract cryptocurrencies and created strategies for developing smart contracts. (10/22 - 01/23)
  - Developed a Python Wrapper to enable Android device automation. (11/22 - 01/23)

#### Project Coordinator @ Lifegate Communities Walsall for BBC Children In Need (Summers 2017 - 2022)

- Successfully devised plans and activities for children as well as led a team of 10 volunteers managing up to 50 children for 10 days for the BBC Children In Need communities project. This was a successful project which has been renewed and expanded year on year.
- Managed staffing and payroll via carefully crafted Excel spreadsheets and handled sensitive staff and child data with preliminary user-access control from 2019 onwards.

## Key Skills

- Programming Languages: Python (Proficient), C/C++ (Proficient), Haskell (Proficient), Nix (Proficient), Typescript (Intermediate), SQL (Proficient).
- Development Methodologies: Agile, Waterfall, Kanban
- Version Control: Git, Nix, Docker
- Operating Systems: Windows, Unix (Ubuntu, NixOS), macOS
- Soft Skills: Teamwork, Communication, Problem-Solving, Time Management

## Extra-Curricular

- Developer of a Hacking Simulator game in the Godot game engine
- Member of the Haskell Foundation Exam Board testing and feedback group

## Education

### **FP-Complete Online Course** (*August 2022 - September 2022*)

I completed this online FP complete course (<https://github.com/system-f/fp-course>) which helped me learn and apply several Haskell concepts.

### **University of Helsinki, Haskell Massive Online Open Course** (*Jan 2022 - May 2022*)

I achieved full marks in this course, self-teaching myself Haskell and working through the exercises found within this course and thoroughly enjoyed it! My answers can be accessed here:

<https://github.com/tobz619/Haskell-MooC-Solutions>

### **University of Derby, Applied Sport and Exercise Science (Physiology) MSc** (*2019 -2020*)

### **University of Leicester, Medical Physiology BSc** (*2016 -2019*)

### **Queen Mary's Grammar School** (*2009 - 2016*)