Michail Pardalos

Email mpardalos@gmail.com **Mobile** +44 7414789650 **Github** github.com/mpardalos **Web** mpardalos.xyz

About me

I am a graduate of Electronic and Information Engineering from Imperial College London. This degree has allowed me to develop skills in hardware design, software engineering and systems architecture. With significant research experience for an undergraduate programme, I am now looking to apply my skills — and acquire new ones — in an applied, industrial environment.

Interests

Functional Programming | Programming Language Theory | Linux | Gaming | Photography

Education

Imperial College London *(2017-2021)*

Electronic and Information Engineering

- Focused on a mix of Electronic Engineering and Computer Science.
- Master's Thesis: Formally verified resource sharing for High Level Synthesis
- Completed with **1st class honours**.

Costeas Geitonas School *(2015-2017)*

International Baccalaureate

- Earned a school scholarship for both years of the Baccalaureate.
- Final mark: 38/45

Skills

Programming Languages

Haskell	**Proficient**
Python	**Proficient**
Coq	**Proficient**
Alloy	**Proficient**
C,C++	**Competent**
OCaml	**Competent**
C#	**Competent**
JS, HTML, CSS	**Competent**
Idris	**Competent**
Scala	**Familiar**

Languages

English	**Proficient (C2)**
Greek	**Native**
German	**Comfortable (C1)**
Spanish	**Learning**

Experience

Imperial College London - Circuits and Systems Group *(August-September 2021)*

Research — Formally verified resource sharing for High Level Synthesis

- Implementing an optimisation for a High-Level-Synthesis (C-to-hardware) compiler and proving it correct
- Formal verification goal has required a focus on correct, simple and easy to reason about code
- Principles from formal verification can be applied to writing correct, type-safe code in any language
- Used the **Coq** proof assistant

Imperial College London - Circuits and Systems Group *(July-August 2019)*

Research — Modelling SQL Transaction Isolation

- Used the **Alloy** modelling language and **OCaml** to model SQL transaction isolation to check for concurrency issues
- Rediscovered an inconsistency in the SQL standard's specification of serializability
- Gave a well-received seminar about my project to the research group.

Google Summer of Code *(June-August 2020)*

Add OpenTelemetry tracing to ghcide

- Added tracing to the **Haskell** Language Server, enabling developers to debug performance issues
- Required learning about internals of the Haskell compiler (GHC), including the C-- language, memory management and the Runtime System (RTS)
- Culminated in a patch fixing a bug in GHC's RTS
- Working in an open-source context meant learning about a large, existing codebase and cooperating with a large group of contributors

Atticsoft *(July-August 2017)*

Web development Internship

- Web development company in Greece
- Developed an internal website for managing employees' time off
- Final product remained in use after the end of my internship
- Technologies used: **C#**, **Umbraco CMS** and **VueJS**

Projects

Kima

Programming language design and implementation

- Interpreter for a language of my own design
- Features: static typing, algebraic data types, higher-order functions, algebraic effects
- Implemented in **Haskell** and tested using **HSpec**, **Quickcheck**, and **Gitlab CI**
- Website link: kima.xyz (https://kima.xyz)

MIPS Simulator

Software simulator for MIPS-1 ISA

- Developed as a coursework project for Computer Architecture module
- Written in **C++**
- Includes testbench of nearly 200 tests
- Commended for clean architecture and code
- Github link: github.com/mpardalos/MIPS-Simulator

Forest Ranger

Illegal logging alarm

- University project to develop a solution for monitoring illegal logging
- Developed a monitoring dashboard using **Typescript** and **Firebase**
- Embedded development using **Python** and the Raspberry Pi

Verishot

Educational emulator and IDE for Verilog

- Developed an emulator, visualizer and VSCode extension for Verilog
- Lead development of the emulator component
- Used **F#** for the emulator and visualizer and **Typescript** for the VSCode extension
- Github link: github.com/olly-larkin/hlp2020-verilog

Self Organising Multi-Agent Systems

Multi-agent simulation

- Built a simulator for a game of social organisation
- Organised the team of 43 students,
- Built using **Go**, **Typescript** and **WebAssembly**
- Link: somas2020.github.io/SOMAS2020