

# KRZYSZTOF DRUCIAREK

## Software Engineer

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## EDUCATION

### MPhil in Advanced Computer Science – University of Cambridge

2023 – 2024

Cambridge, UK

Dissertation: "Categorical Abstract Machine: Theory, Formalisation, Extensions" with Prof. Marcelo Fiore

Modules taken: Category Theory, Advanced Topics in Programming Languages, Network Architectures, Advanced Category Theory, Topics in Logic and Complexity

### BA (Hons) in Computer Science – University of Cambridge

2019 – 2022

Cambridge, UK

Dissertation: "Higher-rank polymorphism with Visible Type Application"

Most important courses: Algorithms, C/C++, OOP in Java, Functional Programming in OCaml, Compiler Construction, Type Theory, Denotational Semantics, Hoare Logic and Model Checking, Cryptography, Quantum Computing

### High School Diploma – XIII High School in Szczecin

2016 – 2019

Szczecin, Poland

Double Finalist in Mathematics Olympiad, Double Laureate in Physics Olympiad, Double Laureate (1<sup>st</sup> place winner) in Technical Knowledge Olympiad, Double Finalist in Astronomy Olympiad. Mathematics camp organiser and lecturer.

## EXPERIENCE

### Software Engineer – DRW, London

Jan 2023 – Aug 2023

London, UK

full-time C++ developer in Chip/Core team (high-frequency platform)

### Intern Software Engineer – IMC Trading, Amsterdam

Jun 2022 – Sep 2022

Amsterdam, NL

C++ engineer in the Europe Execution Team; built WebSocket to Multicast component

### Intern Software Developer – Softwire, London

Jul 2021 – Aug 2021

London, UK

full-stack in TS, difference algorithm, JWT, authentication middleware, Slack integration, UI components, git hooks for CI/CD

### Computer Science Tutor – Akademeia High School

Sep 2020 – Jun 2022

Remote

First year: Teaching Computer Science and C++ programming; Basics of project development in JS, Raspberry Pi.

Second year: Teaching OOP in Java: built a chess game and a simple blockchain with a cryptocurrency.

### Intern Software Developer – Samsung Electronics

Jul 2020 – Apr 2021

Warsaw, Poland

### High-School Students Internship Programme – CERN

Nov 2018

Geneva, Switzerland

## SOME PROJECTS

### Higher rank polymorphism with Visible Type Application – OCaml, Dune, OPAM

Oct 2021 – May 2022

Bachelor dissertation project. Create Simple Functional Language and three different type systems – Hindley–Milner (HM), HM with Visible Type Application (VTA) and Bidirectional type-checking to support higher rank polymorphism. I contributed towards the OCaml repository by publishing an official OPAM package available [here](#).

### Finite Automata and Compilers – OCaml, Docker, WSL2

Jun 2021

OCaml implementation of Finite Automata (DFA, NFA), transformation from NFA to DFA algorithm, parser, Abstract Syntax Tree, interpreter and few compilers. I created my docker image for a safe environment (mounting volumes).

## INTERESTS

Drums

Squash

Cycling

Triathlon

Ultimate Frisbee

Fencing

Piano

Sailing

Rubik's Cubes

Logical Puzzles

DIY

Running

Inline skating



### Scouting Experience

Gaining basic skills of survival, fire building, terrain orientation, signalling, cyphers, knots, becoming a first-aider. Leadership development (courses and training) led me to become a Patrol Leader and later to create a Scout Troop and become its Leader. In 2021 and 2023, I was the Vice-President of the Cambridge University Polish Society.



### Cambridge Ultimate Frisbee

After one month of intensive training (6 per week) I got chosen to the Cambridge University Ultimate Club – the Ultimate Frisbee 1st team. In 2022, I was competing in the men's indoor and outdoor – we won UK Nationals.