Maciej Goszczycki

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About Me

I'm a second-year MSc *Algorithms, Languages and Logic* student at Chalmers University of Technology, Sweden. I enjoy working on the often invisible, including programming languages, design, and data. I use my love of understanding how things work to improve products and contribute to open-source projects. I'm also an avid competitive programmer.

Recent Positions

Amazon Ireland   June 2022–August 2022, August 2023–

Working in the AWS Aurora database team. Using Java, React, JavaScript, and Python to advance CI/CD for Auora's global cell-based architecture. Using AWS services like Lambda, DynamoDB, EC2, Neptune, and others.

FCR Media   June 2020–August 2020

Developed a multi-process TypeScript internet crawler for extracting and tidying product information from leading e-commerce solutions and JSON-LD enabled websites. Used MongoDB to store and incrementally update product data.

Maynooth University, Ireland   September 2016–May 2020

First Class Honours, BSc in Computer Science and Software Engineering. Worked as an undergraduate researcher in the *Summer Programme for Undergraduate Research* 2017 on transpiling C programs into compact Turing Machines using LLVM.

Google UK   January 2019–August 2019

Internship with the *Google Chrome Mobile* V8 team. Worked in C++ on saving memory in the V8 JavaScript engine by increasing memory sharing between JavaScript virtual machine instances and embedding read-only data into the process binary.

Google France   June 2018–August 2018

Internship with the Compiler Research team. Explored X86/X64 assembly optimisation opportunities at Google scale using C++, LLVM, and MapReduce. Contributed to the partially open-source EXEgesis project.

Skills

- Highly proficient in Rust, Python, TypeScript (including Node.js), modern C++, C, Swift, React, HTML, and CSS.
- Experience in MongoDB, PostgreSQL, Haskell, Objective-C, SwiftUI, and Cocoa.
- Knowledge of Git, Vim, macOS, and Linux.
- Experience reading and writing X86/X64 assembly.
- Graphic design experience with Affinity suite of products, Figma, and LaTeX.
- Took part in CoderDojo for 5 years helping to teach children programming.

Open-Source Contributions

V8 JavaScript engine · styled-components · IPython · Homebrew · Node Fetch · Dyalog Ride Definitely Typed · Rust Parinfer · Kona · core-foundation-rs

Achievements

- Represented Ireland twice in the *International Olympiad in Informatics* in 2013 and 2012.
- Represented Maynooth University in the *North Western European Regional Contest* 2017.
- 3ʳᵈ place, *Irish Collegiate Programming Competition* 2018 and 2013.
- 3ʳᵈ place in Ireland, *Google Hash Code* 2017.
- Participated in the HackMIT 2018 hackathon.
- 1ˢᵗ place, *All Ireland Programming Olympiad* 2012.
- 1ˢᵗ place, Maynooth *Programmathon* 2017 and 2016.
- 1ˢᵗ place, *CoderDojo Coolest Projects* 2015 (hardware category), 2014, and 2012.
- 1ˢᵗ place, *Irish Centre of High-End Computing* supercomputer competition 2013.
- Highly commended award in BT Young Scientist 2014 – "Teaching people programming through an online game".

Notable Personal Projects

Kale

A unique graphical programming environment for a Lisp-like language. Written in TypeScript with React, it features SVG-rendering and custom layout engine. Kale uses modal editing, a unique system for grouping expressions (vinculums), and *drag and drop* to imagine a friendlier approach to Lisp programming. It can be found at kale.maciej.ie

BlueTie

A homebrew CPU built out of 74XX-series components. Hand-wired on a breadboard it implements a simple von Neumann architecture with a microcode generated using a custom Haskell toolchain. It was awarded 1ˢᵗ place in the *CoderDojo Coolest Projects* 2015 hardware category.

Work Experience

Lantaca   Part-time August 2016–September 2016, January 2017, June 2017

Network security company. Worked on aggregating multiple blocklists for network request filtering. Major rewrite of a legacy Angular.js dashboard. Backend fixes and maintenance consisting of additional caching and better AWS integration.

Evercam   June 2013, June 2015

Dublin-based CCTV-camera startup. Created a Twitter bot to reply to tweets with an automatically watermarked camera image. Implemented the first official Node.js API client library. Designed and implemented evercam.github.io

Open WiFi   November 2014

Wi-Fi solutions provider. Developed C software using libpcap for OpenWRT routers to triangulating Wi-Fi enabled devices.

Irish Centre of High-End Computing   March 2013

Designed an interactive presentation showcasing ICHEC's involvement in various academic projects using Angular.js, D3.js, and Python.