

# 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 Aurora'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.
- 3<sup>rd</sup> place, *Irish Collegiate Programming Competition* 2018 and 2013.
- 3<sup>rd</sup> place in Ireland, *Google Hash Code* 2017.
- Participated in the HackMIT 2018 hackathon.
- 1<sup>st</sup> place, *All Ireland Programming Olympiad* 2012.
- 1<sup>st</sup> place, *Maynooth Programmathon* 2017 and 2016.
- 1<sup>st</sup> place, *CoderDojo Coolest Projects* 2015 (hardware category), 2014, and 2012.
- 1<sup>st</sup> 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](http://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 1<sup>st</sup> 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](https://github.com/evercam)

### 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.