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Curriculum Vitae: JP Posma

Experienced computer scientist & leader with a broad range of interests. Implementing impactful ideas. Fan of animal slippers and isochrones. I've written production code in **21 languages**, been paid to write code for **18 years**, and once used **25 wine glasses** in a project for MTV.

Professional experience

Zaplib (cofounder / CTO) 2021 – 2022

Zaplib started out as an independent research project, to speed up web applications using **Rust and WebAssembly**. I was then hired back by Cruise to work on it for about half a year, leading a small team of software engineers, working on the open source codebase. I then left Cruise again to **start a company** to commercialize the technology (with Steve Krouse), and we raised funding. We then pretty quickly **invalidated our business thesis** by working with pilot customers, and returned all investment. Learned a lot!

Zipline (software engineer) 2021

I briefly worked at **Zipline**, before I left to work on Zaplib. I worked on geospatial tooling, visualizations, and on simulations.

Cruise (tech lead / staff software engineer) 2018 – 2020

At **Cruise** (self-driving car company) I was the tech lead on **Webviz**, an open source tool for visualizing what robots are "seeing" and "thinking". We pushed the browser to its limits with WebGL, manual memory management, WebAssembly (C++), streaming in gigabytes of data, etc. Webviz quickly became the **most used internal tool** within the company, and other companies and academic projects started using it as well. The technology was later spun off into a startup; **Foxglove**. I also briefly worked on behaviour/manoeuvre planning (in the robotics group), and I helped set standards for technical interviews across the company.

Remix (tech lead + eng manager) 2016 – 2018

At **Remix** we built tools for designing public transportation, to help cities better serve their citizens. I mostly worked on the **scheduling product**, the company's second product. I ended up in a **tech lead and engineering manager dual-role**. I worked on every part of the product, including the data architecture, constraint satisfaction algorithms (e.g. integer linear programming), developer tools, user interfaces, external integrations, and so on.

Brigade (senior software engineer) 2015 – 2016

Versal (senior software engineer) 2013 – 2015

Factlink (software engineer) 2012 – 2014

Wikimedia Foundation (software engineer) 2011

WorldTicketShop (software engineer) 2009 – 2010

Cantouch (multitouch engineering intern) summer of 2009

Triati (cofounder / CTO) 2008 – 2009

Aerotronic (software engineer) 2006 – 2007

Education

MSc in Computer Science, University of Oxford 2011 – 2012

My final project was **JavaScript dares**, an **interactive online programming course** aimed at high school students. It included an interactive **time-travel debugger**, which I later presented at conferences (e.g. Strange Loop).

BSc in Computing Science (cum laude), University of Groningen 2008 – 2011

For my bachelor thesis I researched new ways of **editing wikis** such as **Wikipedia**. In October 2010 I presented preliminary results at the MediaWiki Hack-A-Ton in Washington D.C. on invitation of the **Wikimedia Foundation**. In 2011 development continued in close collaboration with developers of **GRNET**, a Greek research institute. The final thesis received a mark of **9.5** (out of 10).

Willem Lodewijk Gymnasium, Groningen 2002 – 2008

My graduation project was **PimpMyBike**, an electronic circuit placed in the wheel of a bike, which displays an image when driving. I did everything from the circuit board design, component selection, and assembly, to the software (embedded+desktop).

Experience, prizes, and awards

Sabbatical 2022 – now

I am taking some time off before jumping into the next project. II've been working on various projects. 1. **SSH Now** is a tool for more easily accessing remote machines. 2. I've been doing research into software tools for hardware engineers, especially mechanical engineers. 3. I've been playing with physical computing (an extension of my work on Paper Programs).

Independent security research 2020

In my spare time I've been doing some security research: bug bounties as well as puzzles. I ranked #1 on the **HackerOne CTF** leaderboard for 2020.

Paper Programs 2018

Inspired by **Dynamicland**, a physical computing lab, I built **Paper Programs**, an open source programming environment where **physical pieces of paper** run computer programs. A camera detects and retrieves the program associated with each paper. I built this in two weeks, using React, OpenCV (C++ compiled to WebAssembly), Web Workers, and CSS transformation matrices.

Vote16SF *(With Jared Shay and the Vote16SF teenagers)* 2015

For the Generation Citizen Civic Tech Challenge 2015 a fellow programmer and I teamed up with a group that advocates for a lower voting age. In one day we put together a website that tells San Francisco voters why lowering the voting age is a good idea, and concrete steps they can take to help. Our team won the competition's **Civic Alignment Prize**.

λ Lessons *(With Steve Krouse)* 2014

In this hackathon hosted by Y Combinator we created **λ Lessons**, an **open source Haskell course**. For this we implemented a **custom Haskell parser** and **interactive visualisation** of functional expansion and reduction. Our work generated significant interest in the web development and functional programming community — even a spin-off was made, the very entertaining **λ Bubble Pop**.

Huygens Scholarship 2011

The **Huygens Scholarship Programme** awarded me a full scholarship to finance my studies in **Oxford**.

Science Center North (volunteer) 2008 – 2011

As an unpaid volunteer, I worked at **SCN** with children (age 10–18) on **electronics** and **programming** projects. I taught about soldering, (embedded) programming, and the drawing of schematics and circuit boards. We built **oscilloscope games**, **robots**, **aquarium discos**, and **alarm clocks** that played the Super Mario and Tetris themes.

National Informatics Olympiad 2007 – 2008

This competition is aimed at solving algorithmic problems and implementing them. In the national rounds I secured a **5th** and a **7th** place.

RoboChallenge Junior 2006 – 2007

With Marc van Beest

The aim of this national competition was to build a robot that is able to navigate on a grid and perform certain tasks. Our robot won the **1st place** in 2006, and the **3rd place** in 2007.

Various open source projects

I developed parts of **usbpicprog**, an open source, open hardware project, consisting of a **hardware device** and a piece of **cross-platform C++ software**.

I started **OpenLaserFrag**, an open source, open hardware **laser-tag game**, for which I built the hardware and embedded software.

For more information on my **personal interests**, please visit my website: **janpaulposma.nl**.