

Caitlin Wilks

cat@cat.bio

(+44) 07814 117 581

cat.bio | github.com/catchouli

Programming language and tech skills polyglot. Experience in **C++**, **C#**, **Rust**, and **Haskell** writing **high performance 3d (CAD) visualisation software**, **microservices-based distributed cloud platforms**, and **geographic information services**, as well as all sorts of other programming languages and technologies.

SKILLS

I have experience with a wide range of programming languages and technologies, and have always been known as a person who can quickly pick up new ones, but here are a few of my favourites:

- Rust / C# / C++ / Haskell, as well as a wide variety of other imperative and functional programming languages (and GPGPU with CUDA)
- Docker, virtualisation, and cloud services; as well as desktop and cluster software
- Microservice architectures including CQRS and CRUD
- Continuous integration and deployment (CI/CD)
- Cross platform development (Windows and Linux)

PROFESSIONAL EXPERIENCE

Senior Software Engineer, Virtualis Ltd, June 2015 - Oct 2022

I worked for Virtualis in Manchester for many years, making high-performance desktop, distributed, and cloud-based 3d visualisation software for the manufacturing industry and geographic science. I left a huge impression on all of our products and technologies, but in rough chronological order here are a few of the highlights of my career at Virtualis:

- C++, C#, Desktop, Microservices, Kubernetes, RabbitMQ, Jira, Scrum
- 3D graphics, large data visualisation, geographic information services
- Directed the design and development of a large new cloud based product to replace our conventional desktop offerings, with an emphasis on the high-performance backend services
- Migrated our development team from our ageing self-hosted SVN-based development processes, to modern Git-based development, using the Azure cloud for continuous integration and deployment, unit testing, and a GitFlow-based branching and release strategy
- Developed custom solutions for customers 3d visualisation needs, such as a real time volumetric sky complete with clouds for flight training purposes, and support for various custom data formats including huge streaming ones
- Integrated various third-party VR and input hardware into our visualisation suite, and even developed custom input devices on occasion for specialist purposes

And a huge amount more! I was often tasked with solving tricky technical issues and experimental R&D, and was well trusted to come up with solid solutions. As a result I gained a huge amount of experience in wildly varying areas during my 8 years at Virtualis.

OTHER EXPERIENCE

Caitlin Wilks

cat@cat.bio

(+44) 07814 117 581

cat.bio | github.com/catchouli

Co-founder, Lead Programmer, Pillowdrift Ltd, 2013 - 2015

An independent game development company I founded with three friends, which we ran full time for a year in between our second and third years of University. We released a few mobile and PC games (which can be found on <https://pillowdrift.com/> as well as on GitHub) and did some freelance work for outside customers.

Our technologies included Unity, C#, Java and Node, and additional responsibilities included managing the outcomes of projects, breaking down work and organising team members, and communicating with outside influences such as partners, freelancers, press and event staff.

Misc projects

I've done or been involved in a huge amount of non-work-related projects such as:

- I build all sorts of things, some of which can be seen at my website <https://cat.bio/> on the **Projects** tab. My current favourite project is my Chess Tactics Trainer 'Better Tactics', which is written from scratch in Rust, and integrates Spaced Repetition principles and traditional chess puzzles in an attempt to improve training.
- I am the sysadmin and web developer for an online gaming community with a small but loyal community base, which I run in the cloud using Docker, with a variety of pre-existing and custom software.
- Undertaken translation projects to take games created in foreign languages and produce patches that allow the online fan community to play the game in English, which has involved reverse engineering to insert new scripts, and the production of tooling to assist translators to update and test a translation patch without technical expertise.
- I've also modified other games in order to add new content or features that weren't originally there, for example adding networking support to a game that doesn't already have it, or by emulating components of the game such as server software.
- I've designed and built various pieces of hardware including portable versions of game consoles, game controllers, esoteric musical instruments, and a full CNC machine. In the process I've become familiar with CAD software, 3d printing and electronics.

EDUCATION

Bachelor of Science, Computer Games Programming

My undergraduate dissertation involved direct 3D visualisation of volumetric data using the GPU, and was titled "Real-time GPU Ray Tracing with Heterogeneous Volumetric Effects", and can be found at <https://cat.bio/dissertation.pdf>