James Grant

james@jcgrant.com
www.jcgrant.com
(+44) 07716764153
London + Remote

Work

Senior Software Engineer - Freelance 2024 - present
- Wrote a virtual avatar app, using the user's camera, microphone level, and machine learning to puppeteer the character in real-time.
- Wrote and deployed a task management system on K8S, enabling users to view analytics of their workflows, and optimise their time.

Senior Software Engineer - Odin Vision 2023 - 2024
- Rearchitected Machine Learning pipelines by breaking up monolithic services into smaller microservices; increasing FPS performance on the client, and overall data throughput.
- Rearchitected the ML team's code into a central repo, enabling greater collaboration between the Dev and ML teams, and leading to far less mistakes being made while deploying new models to production.
- Restructured git repos and Dockerfiles, enabling a greater developer experience, and simpler deployments to Kubernetes.
- Learnt how to manage K8S on GCP, and the related tools like Helm.

Computer Science Educator - Freelance 2022 - 2023
- Wrote, marketed, and sold bespoke one-on-one courses on Computer Science, and best modern Software Engineering practices.

Senior Software Engineer - Kidsloop 2021 - 2022
- Refactored the entire networking stack of a full stack React app, fixing dozens of bugs which had been breaking production for months.
- Refactored the WebRTC service by removing it's state, using the new networking stack, increasing possible video-chat sizes by 10x.
- Built a high throughput distributed data processing pipeline, in Rust.
- Built Rust libraries which compiled to both Python and Typescript.

Content Creator - Self Employed 2020 - present
- Learnt new creative skills like creative coding, digital art, live streaming.
- Grew a successful Social Media presence of over 200,000 followers.

Senior ML Software Engineer - Babylon Health 2019 - 2020
- Rewrote the Medical Large Language Model software pipeline.
- Built a deployment service, which enabled quick editing and testing of different software pipelines via a simple YAML specification.
- Wrote a Visual Programming Language to allow designers to create complex Amazon Alexa Skills, without code, shortening R&D cycles.
- Rewrote an internal HTTP library, fixing many concurrency bugs.
- Introduced type safe Python, which reduced many edge-case bugs.

Research Engineer - Emotech 2017 - 2018
- Built a Visual Programming Language to allow designers to create complex behaviour, without code, for a smart-home robot assistant, shortening R&D cycles from days/weeks to hours/minutes.
- Built a Natural Language Generation Engine, which augments the robot's speech with contextual information, and a hint of personality.
- Introduced Trello to my workmates, championing Agile practices, and improving communication and productivity across the company.

Computer Vision Research Engineer Intern - Imperial College 2017
- Wrote real-time person tracker, which runs on an Android phone.

Financial Services Intern - Accenture 2016
- Wrote a web app which took complex spreadsheets of reinsurance data, and visualises them in an interactive manner for stakeholders.

Vice President - Imperial College Mental Health Society 2015 - 2017
- Set up Imperial's first mental health awareness society and helped raise over £300,000 to improve Imperial's mental health services.

IT Officer - Imperial College Dance Club 2014 - 2017
- Wrote a mobile app which could be used to verify paid members, using an extension I wrote for the Imperial College Society API.

Web Developer Intern - Twofour 2011 & 2012
- Built a Facebook-esque social network; complete with profiles, a news-feed, friendships, image galleries, comments, and likes.

Values

- **Communication is key** for anything to succeed.
- **A sense of humour** goes a long way.
- **Never stop learning**, and raise those around you.
- **Automate testing code**. Tests, types, smart compilers. Use them.
- **Functional Programming = <3**.

Skills

Programming Languages
I consider myself to be a polyglot. I'm passionate about learning new programming languages, and keeping up to date with new paradigms.
- **Proficient** Python, Rust, Go, JavaScript/TypeScript, Shell, Java, SQL, C/C++, OpenGL, HTML/CSS, Haskell, Lisp+Scheme, Elixir
- **Familiar** OCaml, Erlang, R, MATLAB, C#, PHP, Ruby, BrainFuck

Computing Tools and Utilities
- All OSs, CLIs, Git, Vim, VSCode, Docker, K8s, AWS, GCP, Cloudflare

Education

Imperial College London 2013 - 2017
MEng in Computing and Artificial Intelligence.
- **Genetic Generation of Architectural Design (Thesis)** Orchestrated a swarm of servers, to concurrently communicate with one another and run distributed Genetic Algorithms.
- **Autonomous Drone** Wrote an ML model, in C++, to allow a drone to autonomously fly through a programmed route.
- **CoIDE** A web based IDE. Supports concurrent editing of Python, HTML, and JS, with live runtimes. Think Google Docs, but for code.
- **Doodlr** Allows multiple users to paint together in real-time. Supports complex Photoshop-esque tools and image manipulation.
- **PintOS** A fully featured Operating System, in C.
- **WACC Compiler** Compiles a C-like language to ARM Assembly.
- **Raspberry Pi Emulator** Wrote an ARM assembler and VM, capable of emulating a Raspberry Pi, all in C.

Personal Projects

I have over 150 personal projects, hosted at github.com/JCGrant.
Here are some of my favourites:
- **MC Haptics** A Bluetooth haptic feedback engine, built for Minecraft.
- **Multiplayer RPG** An MMO architecture with entity interpolation.
- **Chess RS** A chess engine written in Rust.
- **Twitch Paints Art** Livestreamed canvas. Users can paint via chat.
- **Kilo** A text editor, written in C. Includes syntax HL and searching.
- **Blox** A proxy allowing Minecraft plugins to be written in Go.
- **glambda** Lambda calculus interpreter.
- **emojibot** AI chatbot which replies to natural language with emojis.
- **Postr** A Social Media with profiles, reposts, media, & comments.
- **ProcGen** Various experiments in procedural generation.
- **Apollo** Record live music loops with friends over the internet.

Interests + Hobbies

- Hackathons, Leetcode, Advent of Code, Project Euler, etc.
- Game development.
- Public speaking, Debating.
- Salsa dancing.
- Guitar, Piano, Singing.
- Un poco de Español.