James Grant

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Values

- Functional Programming == <3.
- Testing code must be done early and often, and should be easy.
- Domain Driven Design makes everyone's lives easier.
- Communication is key for any project / team / company to succeed. A sense of humour goes a long way too.
- Raise those around you.
- Never stop learning.

Work

Software Engineer - Kidsloop 2021 - Present
- Contributed to a highly distributed data processing pipeline.
- Wrote libraries in Rust which compiled to Typescript and Python.

Machine Learning Software Engineer - Babylon Health 2019 - 2020
- Wrote a Natural Language Understanding pipeline, in typesafe Python, using functional programming patterns.
- Introduced typesafe Python to my coworkers which helped reduce bugs and aided in service architecture design.
- Wrote a Visual Programming Language to allow designers to create complex Alexa Skills, shortening design iteration time.
- Gave lectures on Haskell, Golang, TypeScript, and React.js. This helped foster better code quality throughout our teams codebases.

Research Engineer - Emotech 2017 - 2018
- Wrote a Visual Programming Language (Inga) to allow designers to create complex behaviour for a smart-home robot assistant (Olly).
- This language shortened research -> design -> dev cycles from days/weeks to hours, sometimes mimnutes.
- Contributed to, and helped design, the distributed system of dozens of Golang microservices (both embedded and web-based).
- Wrote a Natural Language Generation Engine which augments sentences with contextual information.
- Introduced Trello to my workmates, championing Agile practices, and improving communication and productivity across the company.
- Gave lectures on Haskell, React.js, and Functional Programming.

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

Financial Services Intern - Accenture 2016
- Wrote a web app, in Java, which converted bespoke spreadsheets of reinsurance data into interactive visualisations.
- Gained a strong understanding of the securities market, and various trading and risk management strategies.

Vice President - Imperial College Mental Health Society 2015 - 2017
- Set up Imperial's first mental health awareness society.
- Collected data from students which resulted in Imperial pledging over £300,000 to improve its mental health services.
- Responsible for coordinating events, giving presentations, recruiting members, and creating and maintaining the website.

IT Officer - Imperial College Dance Club 2014 - 2017
- Wrote a tool which read from Imperial's Society API and checked whether dancers had valid, paid memberships.
- Introduced Slack and Trello to the Society's committee, dramatically improving productivity.
- Created and maintained the website, which was easily updatable by non-technical individuals.

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

Skills

Programming Languages
- **Expert** - Python, Go, Rust, Java, JavaScript+TypeScript, Bash, SQL, HTML+CSS, Haskell, Lisp+Scheme.
- **Proficient** - C++, C, Elixir, OpenGL, PHP, Ruby, C#.
- **Basic** - Elm, Erlang, R, MATLAB.

Computing Tools and Utilities
- All OS's, Git, Docker, AWS, Machine Learning frameworks.

Education

Imperial College London 2013 - 2017

MEng in Computing and Artificial Intelligence.

Generative Procedural-Parametric Architectural Design 2017
- Orchestrated a swarm of servers to concurrently run distributed Genetic Algorithms.

Autonomous Drone 2017
- Wrote an ML model, in C++, to allow a drone to fly autonomously.

CoIDE 2016
- A web based IDE. Supports concurrent editing of Python, HTML, and JS, with live runtimes. Think Google Docs, but for code.

DoodIr 2015
- Allows multiple users to paint together in real-time. Supports complex Photoshop-esque tools and image manipulation.

PintOS 2015
- Implemented a fully featured Operating System, in C.

WACC Compiler 2014
- Written in Go. Compiles a C-like language to ARM Assembly.

Raspberry Pi Project 2014
- Wrote an ARM assembler and Raspberry Pi emulator, in C.

Personal Projects

I have over 100 personal projects, hosted at github.com/JCGrant.

Apollo 2020
- Record music loops with friends over the internet using websockets.

emojibot 2019
- AI chatbot which takes natural language and replies with emojis.

glambda 2018
- Lambda calculus interpreter.

Twitch Paints Art 2018-now
- Live streamed canvas, on which Twitch users can paint via the chat.
- Has stayed running, with no errors, since deployment.

Kilo 2017
- A text editor. Supports searching and language syntax highlighting.

Blox 2016
- Using man-in-the-middle attacks to allow Minecraft plugins to be written in Go.

Stock Market Simulation 2015
- Simulate agents trading goods, following the laws of supply and demand.

Personal

- Hackathons, Project Euler, and other programming challenges.
- Game development.
- Public speaking, Debating.
- Salsa dancing.
- Guitar, Piano, Singing.