Max Simmonds

Software Engineer

Contact

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LeetCode

Skills

- Golang/C/Python/Javascript/SQL
- Terraform
- GCP
- Docker
- Microservices
- RESTFUL API Design
- Git
- CI/CD - Jenkins, Gitlab CI
- Web Dev
- Agile/Scrum
- Linux/Unix
- Networking fundementals
- English
- Russian

Biography

Experienced engineer with over half a decade of expertise and outstanding interpersonal skills. Proficient in backend development, I have worked at esteemed organisations such as CERN, the European Space Agency, banks, and leading aerospace companies. Skilled in Golang, C, Python, and JavaScript. Proficient in a versatile tech stack including Azure, GCP, Kubernetes, Docker, Kafka, and more. My commitment extends beyond technical excellence to encompass active participation in hackathons, change teams, and mentoring initiatives.

Relevant Experience

Lloyds Banking Group | Senior Software Engineer — **Jan 2023 - Present**

Chief Technical Office, Center of Excellence
London, UK

- Transformed high load (5000 TPS) API to fully functional Golang microservice, using Kafka, IBM DB2, deployed to OCP
- Transformed Java Spring Boot microservice into Golang, using go kit framework. I developed the gRPC and gRPC gateway, and in memory database to streamline development and testing
- Designed a production ready, Golang microservice template (DB connectivity, logging, testing, etc). Wrote protobufs for auto-generation of OpenAPI/Swagger documentation
- Developed a simple go app with two endpoints, utilising the go kit framework. Containerised and deployed to docker
- Assisted in the identification of existing APIs within the bank that would be suitable for transforming into Golang
- Presented to audiences up to 450 engineers, held workshops/training for our go microservices template. Actively writing workshop material

TEO Robotics Ltd | CEO & Founder — **Apr 2020 - Present**

Design Consultancy
Bristol, England

- Founded a successful consulting company, with no initial investment, which immediately began organic growth
- Large customer base, from mining through to musicians, fuel cell manufacturing, and design consultancies
- Projects include python scripting for auto code generation and FPGA / verilog operating at speeds up to 800MHz, and firmware in C for embedded systems

Thales Alenia Space | Technical Lead — **Oct 2021 - Jan 2022**

Small Scale Cryogenic Coolers
Bristol, UK

- Wrote firmware and register level drivers / algorithms in C (UART, CLI terminal, numerically controlled oscillator) streamlined testing (3x faster)
- Wrote MATLAB scripts to run system identification of captured data, generating electrical equivalent models, and bode plots
- Work package manager, hour tracking/estimating, communicating with manufactures and stake holders. Managed several teams

Achievements

- First Class Master's - Average 84%
- Published paper in IEEE
- Presented at the Royal Institute of Science
- Voted Bright Spark, 2019
- Manufacturer Top 100, 3
- Winner of NASA Hackathon, 2013

Education

2022 - Present

CS50x

Havard University

- Currently, I have passed all problem sets and lab exercises with 100% pass mark
- How to think algorithmically and solve programming problems efficiently
- Concepts like abstraction, algorithms, data structures, encapsulation, resource management, security, software engineering, and web development
- Familiarity in a number of languages, including C, Python, SQL, and JavaScript / CSS / HTML

2012 - 2017

MEng Electrical & Electronic Engineering

University of Plymouth

- First class
- Master thesis, design/implementation of Inertial Navigation System
- Developed multi-threaded audio monitoring system, using TCP and MUTEXs

Diamond Light Source | Power Supplies Engineer — **Sept 2020 - Oct 2021**

UK's National Synchrotron
Didcot, England

- Reduced time to ingest test data by several orders of magnitude. Introduced automatic alert features, via email, for testing anomalies
- Implemented MySQL database, Grafana web server, and data aggregation script, allowing access to test data anywhere. Ported to a Kubernetes cluster
- Role mainly electronics, designing ultra sensitive (0.000001 amp) current sensors and new power supplies for the UK's national synchrotron

Open Cosmos | Electronics Engineer — **Jul 2019 - Sept 2020**

New Space Start up
Didcot, England

- Wrote Python scripts for automating tests and control of space hardware equipment. Reduced time to perform measurements by several days, significantly reduced risk of damage to flight hardware
- Used Python's "FTDI" library, PyFTDI for interfacing between hardware and software
- Role mainly focused on electronics, designing the electrical power subsystem for a cubesat, currently in orbit around the Earth

Safran (UK) Electrical & Power | Senior Specialist Engineer — **Aug 2018 - Jul 2019**

Research and Technology Division
Pitstone, England

- Captured and managed FPGA firmware design requirements to firmware team, working closely with them to ensure correct code
- Role mainly focused on electronics, digitising the Airbus A380 Generator Control Unit (GCU)

European Space Agency (ESA) | Power Systems Engineer — **Jul 2017 - Jul 2018**

Power Conditioning and Distribution
Noordwyk, Netherlands

- Programmed a digital controller (of my own design) for high frequency switch mode converters, in VHDL, allowing for the publication of a paper in IEEE
- Implemented a fixed point PID controller with ADC reader
- Role mainly focused on electronics, co-authored a paper on my work, which was a research based project on the feasibility of digital control of high frequency switch mode converters in spacecraft

Certificates

- Certified LabVIEW Developer
- Certified LabVIEW Associate Developer
- NVQ Level 2 - Engineering

Volunteer & Leadership

- Technical lead, leasing with stake holders, organising several teams
- LabVIEW Student Ambassador - organising/teaching LabVIEW
- Outreach Ambassador for Plymouth University
- Project manager (MEng project) for a central government agency
- Completed first stage of the Engineering Leadership Program (ELP) at National Instruments

Interests

- Rock Climbing
- Motorbikes
- Engineering
- Coding
- DIY

CERN **July 2016 - August 2016**
Application Engineering Summer Student
Geneva, Switzerland

- Wrote LabVIEW drivers for controlling state-of-the-art optical equipment and thermoelectric controllers. Alleviating a project on hold for several years and reducing it's size by an order of magnitude
- Project was to reverse engineer, upgrade, & restore existing fibre optic notch filter - used in the Antiproton Decelerator in CERN

National Instruments (NI) **July 2014 - August 2015**
Application & Technical Marketing Engineer
Newbury, England

- One of two interns (out of 16) to pass the 4 hour 'Certified LabVIEW Developer' exam, along with 'Certified LabVIEW Associate Developer'
- Developer of world first myRIO powered musical Tesla coil - https://youtu.be/AyXX_V5bcWM
- Solved customer programming issues on a daily basis. Receiving an average of 92% customer satisfaction rating, being made the key customer liaison
- Presented at technical conferences and taught customer education classes

Projects

Face Morphing Algorithm
Code to morph two faces, using open CV and python. I developed the maths, using linear algebra, homogeneous coordinates, Affine transformations, and my own cropping algorithm

Numerically Controller Oscillator, in C
Implementation of a numerically controlled oscillator algorithm in C on an embedded microcontroller. Click link for full write up

Github Markdown graph plotter, in Python
A script called from git hook. Interprets markdown files and replaces code with images of rendered graphs. Click the link for full description.

Leetcode API with CORS Proxy, in Javascript
Javascript that uses LeetCode's graphql API and returns information on my leet code stats. Involved writing a CORS proxy on cloudflare server/worker.

Publications

- "Discrete-time modelling of pulse-width modulated DC-DC converters in sub-sampling conditions". In: *2018 IEEE 19th Workshop on Control and Modelling for Power Electronics (COMPEL)*, 25-28th Jun, 2018.
- "Fibre Optic Notch Filter For The Antiproton Decelerator Stochastic Cooling System". In: *CERN Document Server*, 24th Aug, 2016.
- "Man is a robot with defects". In: *Engineering Careers*, 20th Feb, 2015.
- "Putting the hybrid approach to the test". In: *Electronic Product Design Test*, 18th May, 2015

16th December 2023

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