Max Simmonds

Engineering (MEng, MIET, ex-CLD)

- Voted Bright Spark, 2019
- Manufacturer Top 100, 2014
- Winner of NASA Hackathon, 2013

Skills

Engineering 6+ years

C 6+ yrs.

Python 4+ yrs.

Problem Solving 20+ yrs.

Web Development 8+ yrs.

mySQL 8+ yrs.

git 3+ yrs.

Internet of things 4+ yrs.

English L1

Russian A1.1

Biography

Full stack developer, previously a professional electronics engineer (6+ years). Strong maths and inter-personal skills, I am experienced in algorithms and embedded system programming. I have worked for CERN, European Space Agency, Start-ups, and world leading aerospace companies. Competencies include C, python, and JavaScript.

Work experience

Thales Alenia Space | Technical Lead — **Oct 2021 - Present**
Small Scale Cryogenic Coolers
Bristol, UK

- After two months, I was promoted to the technical lead due to my motivation, technical and leadership skills
- I wrote the firmware for a cryogenic cooler driver (embedded C on an STM32)
- Wrote register level drivers and algorithms in embedded C for the UART, my own CLI terminal, and numerically controlled oscillator
- Wrote MATLAB scripts to run system identification of captured data, generating electrical equivalent models, and bode plots
- Work package manager, involving hour tracking/estimating, following up with product orders, communicating with manufactures and stake holders. Managed several teams, including mechanical, systems, thermal, electronics, and quality

TEO Robotics Ltd | CEO & Founder — **Apr 2020 - Present**
Design Consultancy
Bristol, England

- Founded a consulting company, focusing on electronic design
- Range of customers from the mining industry through to musicians, fuel cell manufacturing companies, and other well established design consultancies
- Predominately electronic design, some programming projects such as python scripting for auto code generation, and FPGA / verilog programming

Diamond Light Source | Power Supplies Engineer — **Sept 2020 - Oct 2021**
UK's National Synchrotron
Didcot, England

- Increased readability and ease of access for test data used at particle accelerator complex
- Implemented a MySQL database, grafana web server, and data aggregation script. Ported to a Kubernetes cluster
- Role mainly focused on 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

- Working in a fast paced, agile, start up
- Python scrips for automated testing and control of test equipment
- 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
Pitstone, England

- Capture of FPGA firmware design requirements
- Role mainly focused on electronics, I digitised the Airbus A380 Generator Control Unit (GCU)

Education

2012 - 2017

MEng Electrical and Electronic Engineering (First Class Honours)

University of Plymouth

- Developed an electric self-balancing unicycle, including hardware and software.
- Developed an audio monitoring system, working over over TCP, multi-threaded to handle keyboard input and data streams, MUTEXs used for critical code sections. Communications between Raspberry Pi and Ubuntu

Certificates

Certified LabVIEW Developer

National Instruments

Jul 2015 - Jul 2018

Certified Developers can provide technical leadership to less experienced engineers

Interests

- Rock Climbing
- Motorbikes
- Engineering
- Coding
- DIY

Contact

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github.com/maxsimmonds1337

maxsimmonds.engineer/

LeetCode/progress

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

Power Conditioning and Distribution
Noordwyk, Netherlands

- Programmed a digital controller for high frequency switch mode converters, in VHDL (a hardware description language)
- Implemented a fixed point PID controller with ADC reader
- Role mainly focused on electronics, I 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

CERN - European Organisation for Nuclear Research — July 2016 - August 2016

Application Engineering Summer Student
Geneva, Switzerland

- Wrote LabVIEW drivers for controlling state-of-the-art optical equipment and thermo-electric controllers
- Project to reverse engineer, upgrade, & restore existing fibre optic notch filter - used in the Antiproton Decelerator in CERN

Projects

Ebike Controller Firmware
Code to run on microcontroller for controlling an Ebike, written in C

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.

Pastebom.com
A website designed from scratch, hosted at home on my own Apache server. It's used for sharing/storing BOMs, or Bills of Materials, frequently used in Engineering. It uses HTML, CSS, AJAX, JavaScript and required good knowledge of Linux

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

29th September 2022

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