

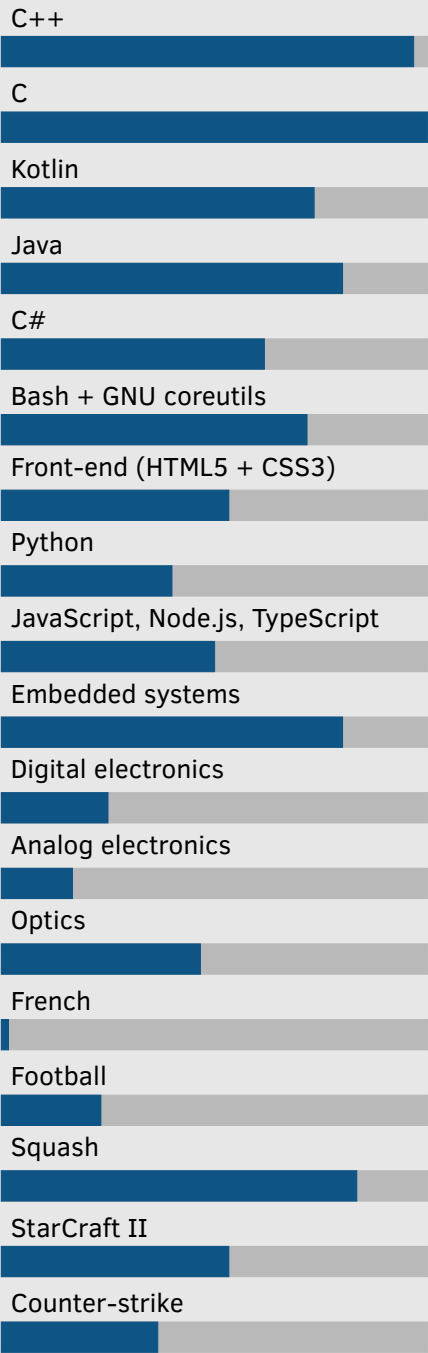


Mark K Cowan

Software Engineer

- Tallinn, Estonia
- hackology.co.uk
- mark@battlesnake.co.uk

Skills



Experience

- 2018-2018** Lead flight software engineer Open Cosmos
Designing the next-generation flight software (C/Kotlin), to be flown on hundreds of mass-produced spacecraft.
Training others in the design and in associated computer-science and operating-systems theory, so that they can implement it and maintain it.
- 2017-2018** Head of software Open Cosmos
Building & growing a team of skilled software engineers, aerospace engineers & physicists.
Training/teaching the team:
 - Object-orientated design patterns (gang-of-four)
 - Algorithms & data-structures
 - Concurrency (distributed/parallel/asynchronous styles)
 - Functional programming basics (for SQL, react, lodash, etc)
 - Networking
 - POSIX/Linux
 - Gitlab/DevOps
 - Real-time (latency-constrained) programming

Managing resource-allocation/acquisition across several separate software projects.
Helping the infrastructure/ops team to replace my original “startup-grade” infrastructure with a robust and resilient micro-service architecture, using tools such as:

- Kubernetes
- RabbitMQ
- Docker
- Redis

- 2015-2016** Software & payload engineer Open Cosmos
Developing:
 - Flight software (C / FreeRTOS / AVR32)
 - Mission-control software (C)
 - Radio control software (C++ / SDR)
 - Radio modulator/demodulator DSP software (C)
 - Cloud infrastructure (Docker / DigitalOcean)
 - Machine-to-machine communications (ZeroMQ),
 - Webapp (AngularJS / TypeScript / Node.js / PostgreSQL)
 - Mission simulator (Java / Maven / Gradle)
 - Development kits (Das U-boot / Linux / systemd / coreutils)

- 2015-2015** Entrepreneur in residence Entrepreneur First
Invited onto Entrepreneur First cohort #5, from where I saw the start of Open Cosmos, which I joined a few months later.

- 2014-2015** Front-end developer Eesti Rahvusringhääling
Development and maintenance of widgets such as the homepage schedule browser and the live-stream viewer.
Using HTML5, CSS3, JS, C#, .NET MVC4.

- 2012-2013** Various freelance jobs and short-lived startups.

- 2012-2012** Lab demonstrator University of Manchester
Teaching and supervising lab-work involving real-time tomographic imaging of mixing processes.

- 2006-2011** Head coach / coach / assistant coach Various squash clubs
Coaching at various squash clubs in the north-west of England.

Other

- 2016** Patent GB201603920A
Apparatus and method for satellite payload development.
- 2016** Hackathon ActInSpace @ Tallinn
Won fast-track to Prototron accelerator with lunar agriculture concept.

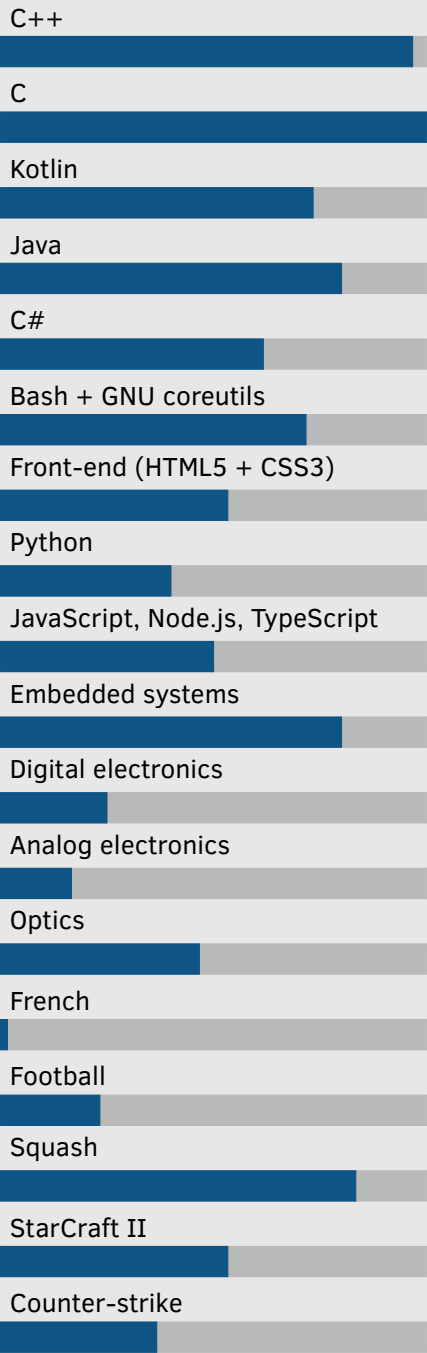


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Skills



Education

- 2013-2013 Machine Learning Coursera
Andrew Ng's course on Coursera, 100% score.
- 2011-2013 PhD Chem. Eng. & Analytical Sci. University of Manchester
I taught a lab project involving real-time tomographic imaging of mixing processes. I left the PhD during 2nd year, as rate of progress was too slow for my liking.
- I took several extra taught courses including:
- ▶ COMSOL Multiphysics
 - ▶ NMR spectroscopy
 - ▶ OpenCL
 - ▶ OpenACC
 - ▶ OpenMP
 - ▶ MPI
 - ▶ Intel Parallel Studio XE
- 2010-2011 MSc Photon Science University of Manchester
Distinction in:
- ▶ Holography and imaging
 - ▶ Optical instruments
 - ▶ Soft-matter physics
- Merit in:
- ▶ Semiconductor quantum structures,
 - ▶ Laser technology
 - ▶ Laser photomedicine
 - ▶ Lasers and photonics
 - ▶ Soft-matter physics
- I was elected as representative for the course.
I was elected as treasurer for the post-graduate society.
- 2007-2010 BSc (Honours) Maths and Physics University of Leeds
First class in:
- ▶ Advanced quantum mechanics
 - ▶ Medical imaging
 - ▶ Calculus and mathematical analysis
 - ▶ Modelling with differential equations
 - ▶ Intro to music technology
- Upper second-class includes (non-exhaustive):
- ▶ Nuclear physics & energy
 - ▶ Advanced mathematical methods
 - ▶ Further linear algebra
 - ▶ Project (distributed computer simulation)
- I represented the university nationally at:
- ▶ Squash
 - ▶ Aikido
 - ▶ Korfball
 - ▶ Tenpin bowling
- 2000-2007 High school / Sixth form Lancaster Royal Grammar School
Advanced (A) level in:
- ▶ Maths
 - ▶ Further Maths
 - ▶ Physics
 - ▶ Chemistry
 - ▶ Critical thinking
- Various awards including:
- ▶ Community Sports Leadership award
 - ▶ "Distinction" in British Informatics Olympiad
 - ▶ Consistent "Gold" awards in Mathematics Olympiad