

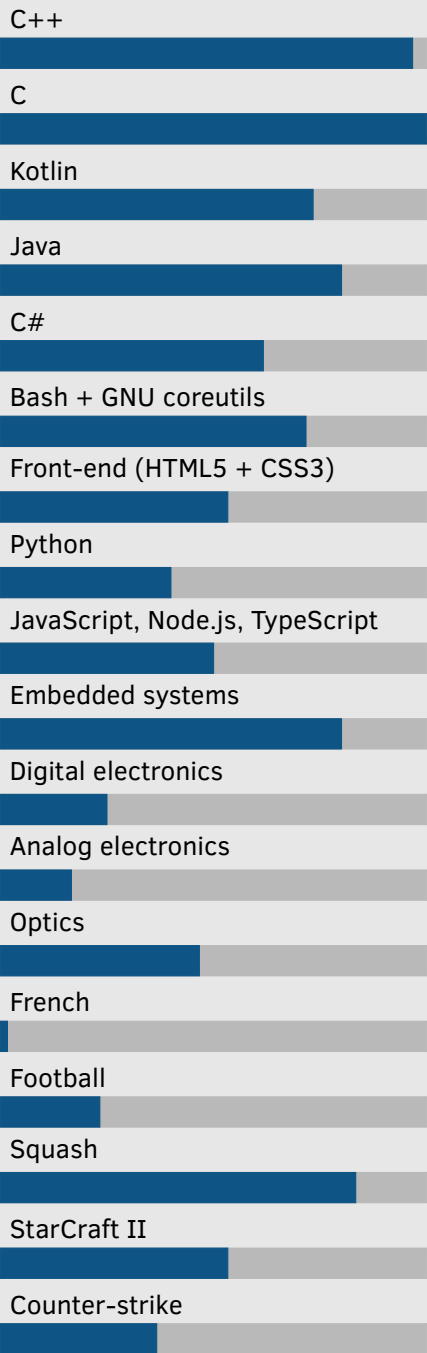


Mark K Cowan

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.
Headhunting, approaching, interviewing, testing – the whole lot.
Managing resource-allocation and acquisition across projects.
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) programmingHelping the infrastructure/ops team to replace my original “startup-grade” infrastructure with a robust and resilient micro-service architecture, using tools including:
 - ▶ Kubernetes
 - ▶ RabbitMQ
 - ▶ 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)
 - ▶ Web app (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** Entrepreneur *Various freelance jobs and short-lived startups*
- 2012-2012** Lab demonstrator University of Manchester
Teaching and supervising laboratory projects for BSc students, involving real-time tomographic imaging of mixing processes.
- 2006-2011** Head coach / coach / assistant coach *Various squash clubs*

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.

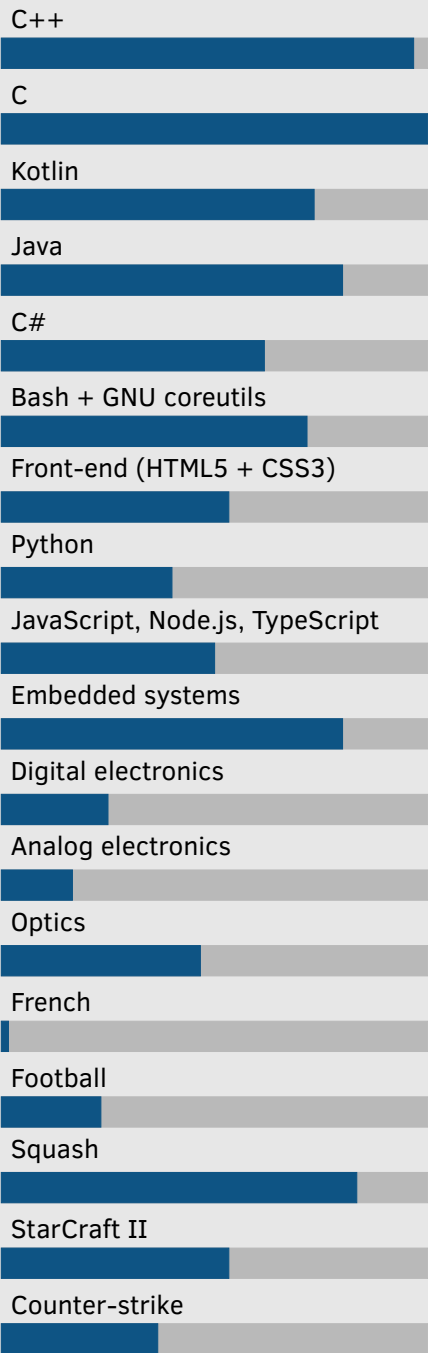


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Skills



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
 - ▶ Korfbal
 - ▶ 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