

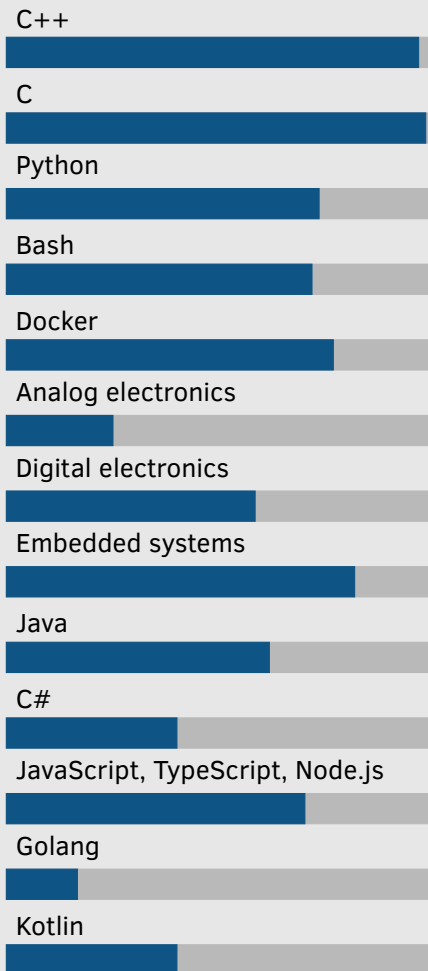


Mark K Cowan

Engineering Operator

- Tallinn, Estonia
- hackology.co.uk
- mark@battlesnake.co.uk
- github.com/battlesnake
- linkedin.com/in/photonicist

Skills



Experience

- 2026–** Founder, HiPPO Potamus
 Helping organisations to smoothly scale their engineering operations
 In tech, ops is usually an afterthought until it becomes a noose on velocity. I can help you to solve that, or to prevent it.
- 2024–2026** CTO, Co-founder Lendurai
 End-to-end FPV strike missions with terminal guidance
 Most details confidential. Designed initiation board used for every live-fire FPV exercise in Estonia throughout 2024.
 C++, ARM64 assembly, i.MX8, Docker, Qemu, OpenCV, PX4, MAVLink, LoRA, Bash, Slack, Github, ...
- 2023–2023** Occasional merc Kanvas.ai Art Technologies
 Kanvas.ai provides fractional investment in fine art, both via traditional means and also via tokenisation on the Tezos blockchain.
 Next.js, AWS, Tezos
- 2019–2024** Senior Data Engineer Bolt
 Delivering new operations/tools/infra to scale from <10 models to >1000, from quarterly releases to daily/weekly releases, and improving performance and costs.
 AWS (EC2+S3+Sagemaker+Redshift), Airflow, SQL, Python, Docker, Jenkins, Bash, TypeScript, ...
- 2018–2019** Lead flight software engineer Open Cosmos
 Designing the next-generation flight software (C/Kotlin).
 C, C++, Kotlin, devicetree, Linux kernel, Das U-boot, Kicad, Java/Swing, ...
- 2017–2018** Head of software Open Cosmos
 Building and growing a team of skilled software engineers, aerospace engineers & physicists.
 HipChat, Trello, Gitlab, ...
- 2015–2016** Software & payload engineer Open Cosmos
 Delivered flight-software for our first satellite, foundations for mission-control software, ground-segment radio software, ground-station networking, tracking, ...
 C, FreeRTOS, AVR32, Node.js, Ettus USRP SDRs, Docker, ZeroMQ, Typescript, Angular, Postgres, Java, Gradle, Das U-boot, Linux kernel, systemd, Kicad
- 2015–2015** Thundercloud Tech
 Short-lived startup while on Entrepreneur First.
 Temporal arbitrage of cyclic energy demand to create synthetic supply during peak times.
- 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
 The usual culprits: HTML5, CSS3, JavaScript. Also C#, .NET MVC4, Entity Framework, MS SQL.
- 2012–2012** Lab demonstrator University of Manchester
 Teaching and supervising laboratory projects for BSc Chemical Engineering students, involving real-time tomographic imaging of mixing processes.
- 2011–2011** TracerCo TracerCo
 , , and MODBUS.

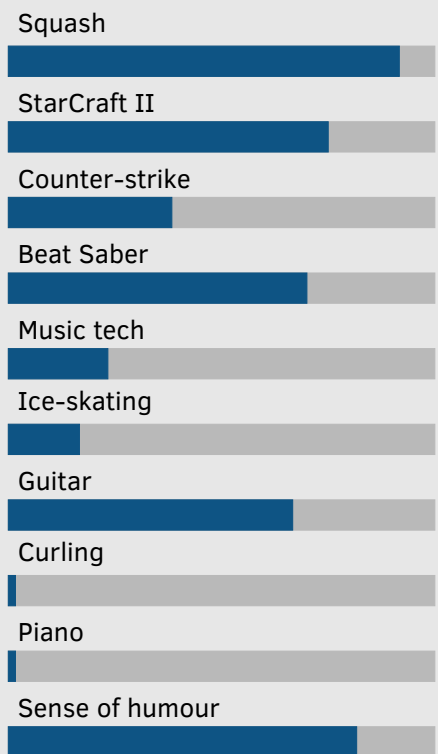


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More skills



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 left the PhD during 2nd year. I taught a lab project involving real-time tomographic imaging of mixing processes.
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
 - ▶ Shodokan 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 several Mathematics Olympiads

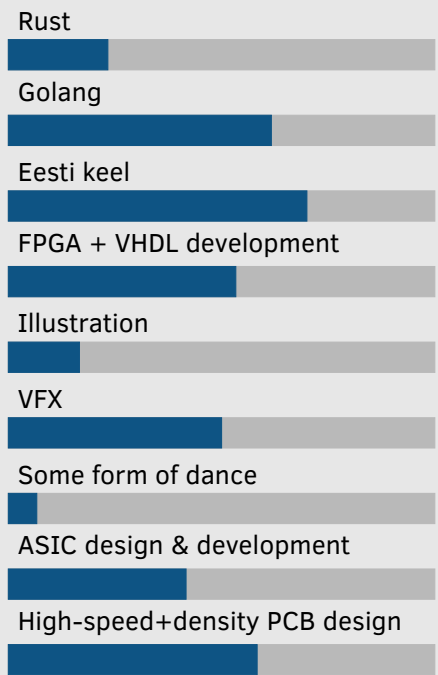


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Want to learn



Miscellaneous

- **References** LinkedIn
References are immediately available on my LinkedIn profile at <https://www.linkedin.com/in/photonicist/>.
See the “Recommendations” section on the profile.
- **Patent** GB201603920A
Apparatus and method for satellite payload development.
- 2016 **Hackathon** ActInSpace @ Tallinn
Won fast-track to Prototron accelerator with lunar agriculture concept.
- 2018 **“Boom” generative graphics/audio project** JS+GLSL+Povray
A HTML5 canvas + WebGL + GLSL + WebAudio project, to experiment with procedural generation.
There’s no real objective or meaning in this artwork, it’s just for fun.
It’ll never be finished, I’m always adding layers and sections to it when I get inspiration.
Live at <https://hackology.co.uk/boom/>.
Due to WebGL+WebAudio usage, this will not work on most smartphones/tablets. It should work on any half-decent PC running Chrome or Firefox.
- 2013 **“neural”** CTAN/LaTeX
A LaTeX package for drawing neural-network diagrams with Tikz.
100+★ on Github.
- 2015 **“angular-chrome”** Chrome/JS
A Chrome extension for inspecting AngularJS contexts.
Available on the Chrome Store, but the URL is huge.If your PDF viewer supports hyperlinks then you can just click here to open it.
It has ten reviews averaging slightly over 4.3/5★ at the time of writing this.
On Github at github.com/battlesnake/angular-chrome.
- 2015 **“gulp-google-webfonts”** npm/node.js
A node.js/gulp package for automatically downloading fonts from Google WebFonts during the build process, and auto-generating the relevant CSS.
Consistently >1000 weekly downloads from npm at npmjs.com/package/gulp-google-webfonts.
50+★ on Github at github.com/battlesnake/gulp-google-webfonts.
Used by BitWarden project among others.
- 2015 **“kaiu”** C++
Self-learning project: A collection of interacting asynchronous and concurrent experiments in C++.
Not used in production, nor should it as the heavy templated nature of this library means that compile times will explode massively.
On Github at github.com/battlesnake/kaiu.