

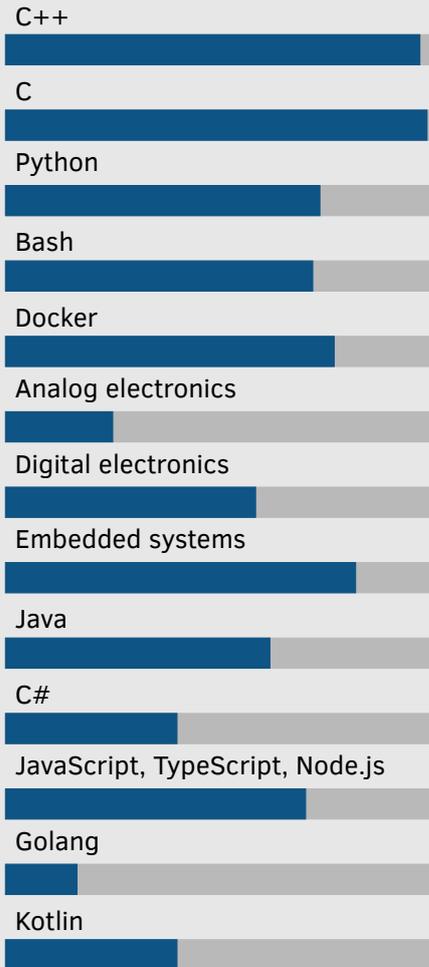


# Mark K Cowan

## Software Engineer

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

## Skills



## Experience

- 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.  
 Improving the UK power grid's low-voltage network's efficiency and reliability.
- 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.
- 2006–2011** Head coach / coach / assistant coach *Various squash clubs*

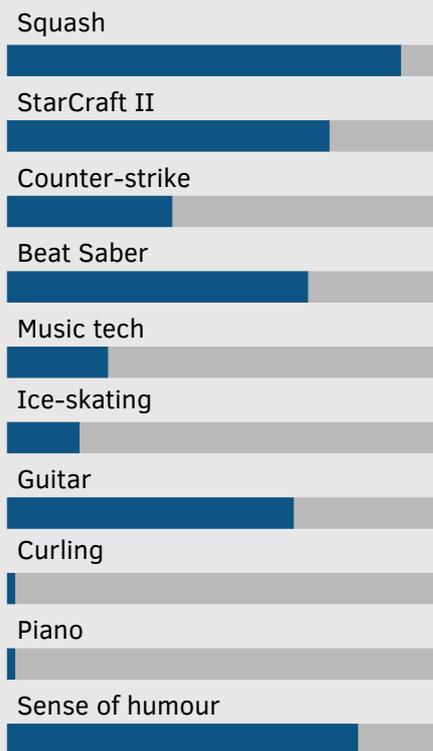


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## More skills



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

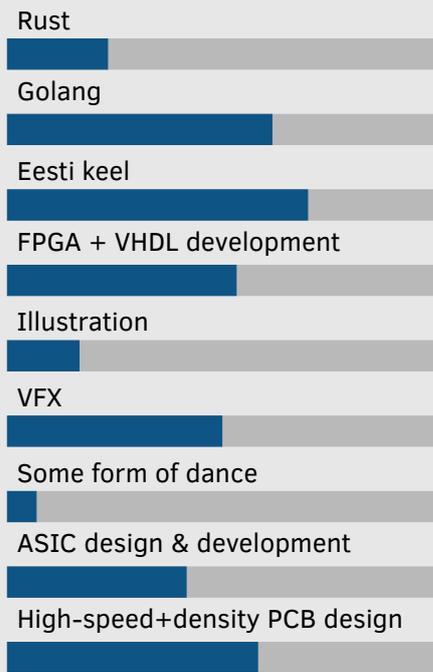


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## Want to learn



## 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](https://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](https://npmjs.com/package/gulp-google-webfonts).  
50+★ on Github at [github.com/battlesnake/gulp-google-webfonts](https://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](https://github.com/battlesnake/kaiu).