Davide Cavion

Email : davide@cavion.eu
Mobile : +353-83-1939545

EXPERIENCE

- **Narkive Ltd**   Jul 2009 - Present
  - **Created a website attracting up to 250 thousand people a day**: What began as an experiment turned into a profitable business. I designed methods to archive and retrieve a billion Usenet and mailing-list messages, making them accessible via the web. Due to the variety of topics many different searches can lead to those pages, that are monetised through advertisements.
  - **Scaled from zero to a distributed and redundant platform**: Beginning with a system hacked on top of a commercial bulletin board I eventually crafted several all custom versions of what is required to archive terabytes of text messages, making them searchable and retrievable with 99.99% uptime, sustaining more than 100 uncached page views per second.
- **fpv.blue**   Mar 2015 - Aug 2019
  - **Bootstrapped hardware startup**: Reinvested Narkive's advertisement revenue into a long range (20km), low latency (50ms) real time video transmission system for drones, to aid piloting from the ground (FPV).
  - **Worked on two devices**: One operating at 1.3 GHz (see YouTube for reviews) and, after customers received the first version, a much more advanced and reliable 2.4 GHz ISM version with no external engineering help.
  - **Exited**: Even though product and technologies were solid I was not satisfied with the number of preorders and stopped believing in the consumer facing business. Plenty of companies were interested in the design, that I licensed to at least one startup working on a police robot.

EDUCATION

Trinity College Dublin 2016 – 2018	**Dublin Institute of Technology** 2013 – 2016
B.A.I in Computer Engineering; II.1	*B.Eng.Tech in Electronics and Communications; I*
FYP: Frequency Hopping Spread Spectrum transceiver.	FYP: Indoor Wi-Fi geolocation using Channel State Information.

PROJECTS

- **FPGA Password Cracker**: Wrote the same code (two sha256 iterations + one aes decode round) in every way imaginable: Using standard crypto libraries, Intel intrinsics, OpenCL (GPU) and finally Verilog (FPGA). I then built a cluster of 54 Kintex-7 420T drawing 1800W worth of electricity for less than the cost of a couple of chips off Digikey.
- **Google Hash Code 2016**: I ranked #112 (and first in Ireland) after competing on my own with zero preparation.
- **Bitcointa.lk**: A social and technical experiment from the early days of Bitcoin: Can you siphon users off an established but mismanaged community with a frustrated user base, by means of creating a new meta-forum with all of the contents of the old one, two-way data sync and a much better user interface?
- **tfSEO**: techforum-SEO. A url rewriting plugin for vBulletin. This was my first and only open source project (2008), with over 600 installs and 5000 downloads.
- **techforum.it**: First website, I grew it from nothing to an online community with 100k posts. It taught me how to code.

SKILLS

- **People**: Clocked over 2500 hours managing technical work performed remotely. Negotiated several contracts with clients and suppliers. Responsible for the face of the company, including marketing and website design.
- **Languages**: Advanced level: C, PHP. Working experience with: C++, Python, Javascript, Verilog, VHDL, MySQL, HTML, CSS, shell scripting.
- **Linux Kernel**: Routinely hack the Linux kernel during embedded development because of suboptimal drivers or to add features, lower latency, meet hard time constraints, lower boot time, etc.
- **System administration**: Managed Narkive's Unix/FreeBSD servers over the last ten years maintaining a 99.99% uptime, designed the multi-server HA infrastructure.
- **Web development**: Started with Microsoft FrontPage as a ten-year-old and eventually grew to having first hand experience with the entire web stack, from front end browser support tables to IP anycast.
- **Mobile development**: Worked on a couple of small Android applications and on a bigger project as part of a college team: a game running on a custom engine where I was responsible for implementing gravity and object collision.
- **Electronics**: High level system design, schematic capture and high speed/RF layout (Altium). Hand soldering 0201 and 0.4mm pitch BGAs, using advanced test equipment including hacking together my own when required. Managing sourcing of components and small scale manufacturing.
- **Radio Frequency**: Using existing RFICs and exploiting them/their RF modulations to the limit (including exploiting DVB-T's very long guard interval to fit an uplink, which is a novel concept). Designing my own GNURadio/LiquidDSP transceiver, theory and practical application of RF designs, CE/FCC certifications, etc.
- **Video, latency and communication protocols**: Bit-level h264 experience, slice based video capture and encoding, synchronising the output display on a free running clock, low latency and designing my own sync/data protocols.