

# CALLAN BRYANT MEng

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Principal Cloud Architect at Hypervision Surgical, an AI-powered hyperspectral imaging company. Hands-on architect and engineer with 12 years building secure, traceable software and infrastructure for regulated healthcare: cloud platforms, GPU compute, device connectivity, edge systems and compliance. Took Cydar EV from prototype to around 100 hospitals in the US and EU.

## CAREER HIGHLIGHTS

I design and build whole systems, from PKI and infrastructure-as-code to application code, and have led the teams that ship them.

HYPERVISION SURGICAL

### PRINCIPAL CLOUD ARCHITECT

2026 to present

Owns Hypervision's cloud platform: secure, traceable data flows, observability and deployment, built for SaaS, partner integration and petabyte-scale ML training data.

**Post-market surveillance cloud platform**
Designed and built a Django/React platform on a Terraform-managed 7-account AWS organisation in 5 months. ECS, RDS, WAF and SAML SSO, ready for UK/US data residency and SaaS

**Security monitoring and NHS assurance**
Built an Elastic SIEM fed by CloudTrail, WAF and app logs; its data drove WAF rules. Wrote traceable security requirements for NHS and partner reviews ahead of deployment as a connected medical device

**Secure surgical device connectivity**
Delivered a PKI with hardware-rooted device identity and mTLS upload. On-device pseudonymisation and PACS integration to file captures against hospital patient records

CYDARMEDICAL

### VP OF ENGINEERING

2025 to 2026

Technical strategy, architecture and product ownership; hands-on development alongside leading dev and QA teams of up to 10.

**Immutable edge OS (buildroot)**
Designed and delivered a buildroot-based, immutable Linux OS for hospital edge devices. Highly available and secure

**Dev/QA process redesign**
Introduced a Scrum process across dev and QA. Cut rework by ~30%

**Automated regulatory release docs**
Connected Jira, TestLodge and GitHub Actions APIs with Python to automate traceability of requirements, test evidence and security scan triage, and to compile regulatory release docs. Saved a week of work each month and cut the risk of human error

### HEAD OF ENGINEERING

2022 to 2025

Led and grew a team of up to 9 engineers. Built ISO 27001, IEC 62304, ISO 14971 and ISO 13485 compliance into the SDLC.

**Automatic Volume Assessment system**
Led delivery of an AI-based aortic aneurysm volume assessment system, used at around 100 sites

**CT follow-up transfer system**
Architecture and project management for a batch system that automatically transfers follow-up CT scans. Transferred 10,000+ scans across 50 sites to support patient follow-up. Python, TypeScript

**Team restructure and QA automation**
Restructured dev and QA teams to increase collaboration. With test automation and requirements traceability, QA headcount went from 8 to 3, cutting cost significantly with no loss of quality or safety

### PRINCIPAL ENGINEER

2017 to 2022

Design and development of the Cydar cloud and edge components that brought Cydar EV to the operating theatre; project and team lead.

**In-theatre remote control**
Co-ordinated research, UX, UI, hardware, compliance and embedded firmware for a LoRa RF USB remote. 10-year battery life. Deployed at 100 US/EU sites with zero issues. Embedded C, ATMega

**Anatomy deformation adjustment**
Led 8 engineers to deliver an anatomy adjustment tool needed for commercial viability. Indirectly led to around 90 more sites

**Edge auto-update and process manager**
Built an auto-update system for deploying and monitoring edge software in hospitals. Code audited by NCC Group. 100s of installs each with 100s of updates; 0 failures. Python, gRPC

**Hospital SSO (SAML2)**
Built a Python/Django SAML2 service provider for hospital SSO via Microsoft ADFS and Azure AD. Penetration tested by NCC Group. Won Cydar's first US customer

### SENIOR ENGINEER

2014 to 2017

Brought the prototype Cydar system to market.

**PACS DICOM / web gateway**
Built an edge-deployed gateway to query and retrieve CT scans (DICOM) from hospital PACS. Concurrent, queued transfers with real-time progress. In use since 2017 in 80+ hospitals

**Content-addressed object store**
Built on S3 and Redis for low-latency, reliable data access. Intrinsic automatic de-duplication and integrity guarantees. Critical for Cydar's patient data and pipeline

**Distributed GPU compute system**
Cut 2D-3D image registration time from 50 s to 5 s, making it clinically usable. Low-latency work-distribution system using Redis

BROADCOM

### SYSTEMS DESIGN ENGINEER

2013 to 2014

FPGA-based and PCB hardware design for video SoC validation and test systems.

**FPGA cluster I/O multiplexing**
Designed a source-synchronous clocking scheme that raised SoC core clock 4.5x, giving ~2x productivity and cutting cost

### INDUSTRIAL PLACEMENT AND SUMMER INTERNSHIP

2010 to 2011 + 2012

Virtex-7 FPGA cluster bring-up with pattern checking HDL. Dev board design, stereoscopic camera add-on, automated testing system, lab and budget management.

**Stereoscopic camera development add-on board**
Designed 2 daughtercards for a dev kit to interface 2x CSI cameras with shared clock and auto-stereoscopic 3D display, before datasheets were published

## SKILLS & TECHNOLOGIES

From embedded C to Python, Go and TypeScript; from PCB design to AWS Organizations. Focus on cloud infrastructure, security and compliance automation.

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| **Programming languages** | **Extensive**: Python, Go, TypeScript/JavaScript, Bash, Embedded C, HTML/CSS, OpenSCAD<br>**Proficient**: SQL (PostgreSQL, SQLite), LaTeX, Typst<br>**Familiar**: C/C++, Perl |
| **Cloud & infrastructure** | **Extensive**: AWS (Organizations, IAM Identity Center, ECS Fargate, ECR, RDS PostgreSQL, ELB, WAF, CloudTrail, CloudWatch, Kinesis Firehose, S3, KMS, Route 53, ACM, Secrets Manager, Lambda), Nix (flakes, NixOS, home-manager), Linux (Ubuntu, buildroot, NixOS, Fedora, RHEL), Docker/containers, Ansible, Yocto, nginx, Redis, Network administration & design, Terraform<br>**Proficient**: ZFS, GCP/Azure<br>**Familiar**: Kubernetes, FreeBSD |
| **Security** | **Extensive**: PKI (X.509, mTLS), GnuPG, Code signing (Authenticode, OpenPGP), WireGuard<br>**Proficient**: SIEM (Elastic), SAML2 SSO, WebAuthn/passkeys, nftables/iptables<br>**Familiar**: Microsoft Entra ID |
| **Development** | **Extensive**: Git, GitHub Actions/GitLab CI, Django, DICOM/PACS, Jira, AI-assisted development (Claude Code, opencode)<br>**Proficient**: gRPC/WebSockets, React/Svelte, Jenkins, Agile (Scrum/Kanban), ISO 13485, IEC 62304, ISO 14971, ISO 27001 |
| **EDA/HDL/Hardware** | **Extensive**: Fine-pitch soldering, 3D printing (FDM)<br>**Proficient**: Ultra-low-power electronics, Electronic/electrical circuit design & troubleshooting, SMD rework, RF/LoRa<br>**Familiar**: SystemVerilog, KiCad/LibrePCB |

## EDUCATION & QUALIFICATIONS

University of Leicester

**Master of Engineering (Electrical and Electronic) with Industry**
University of Leicester, First Class Honours — 2008 to 2013
Isolated, scalable battery management system with individual cell voltage and temperature readout. P/I-based current-mode 0-300A 2x16kW DC motor controller for Formula Student. Year in industry at Broadcom, mobile multimedia group.

**Scrum Master Certification** (2024, The Knowledge Academy)

**Amateur radio licence** (2021, RSGB, Foundation). Callsign M7NBD

**A levels** (2008, East Norfolk Sixth Form College, ACD(B)). Electronics, Physics, Maths, Computing (AS)

**GCSEs** (2006, Kirkley High School, AAABBBBBCCC)

## HOBBIES & INTERESTS

I design and build things: electronics, software, woodwork and 3D printing. I blog my adventures on https://calbryant.uk/. In my spare time I also run, cycle and play badminton, and chair my local badminton club. I created and maintain 2 open-source projects: dstask (a task tracker) and dsnet (a VPN manager)