CTO with AI expertise - Commercial and technical skills

Accomplished technology executive with a proven track record of managing teams and driving growth in innovative enterprises. Specializing in leveraging data to monetize digital products and operations, I've led companies through exponential growth phases. My experience covers strategic oversight of technology roadmaps, fostering a culture of innovation, and spearheading IT initiatives.

I bring passion and expertise to my work, backed by sound management, cybersecurity, and good governance. I work with teams to boost our positive impact.

20 years industry experience – working for organisations such as the BBC, Home Office, Ministry of Defence, Harrods, & ScotRail, plus several start-ups - plus a strong academic record.

Played a key role in the launch of several other successful start-ups as fractional CTO or AI lead.

Expert skills in applied AI and data science. I also engage hands-on with code and dev-ops. I combine strategic planning with client-facing work and hands-on development.

Board experience in commercial and third sector. Strong management skills, developed through considerable business experience. Excellent at adapting to new environments and challenges. Trained in user-centred design. A skilled communicator, particularly strong at communicating technical ideas to a non-technical audience.

Jobs and Experience

WebMechanix, CTO (2016 to 2024)

Provably better engagement, and half the money goes to charity. Company solves the problem of delivering adverts in a way people actually like – by re-framing the advert as unlocking a micro-donation to charity. This is nicer for the user, has raised over $8 million for charity, and crucially it delivers better results for the advertiser: It's a win-win.

Combines innovation, technology, and business to do good at scale.

My role involved leadership in product and technology, plus establishing good processes for operations.

Selected Projects:

- Establishing and growing the Product & Tech functions – delivering innovative and robust systems with near-zero downtime. This product success was backed by building and scaling a high-functioning team with high morale, low churn, and good documentation and shared knowledge.
- Working closely with Finance on strategy and product margins, and on streamlined operations via automation.
- Integrating products into the advertising ecosystem. This has challenging technical requirements, such as 100 millisecond response times for AI decision systems.
- Carbon measurement and reduction in advertising
  - The system analyses publisher websites, advert creatives, and the AdTech auction ecosystem.
  - This project has helped shift the advertising industry towards greater action on climate change.
- Smart workflow tools. Enabling a small team to do more, and do it better. Tools are designed to fit the needs, using the best technology as appropriate.
  - Workflow tools for fast high-quality production of advert videos and display assets.
  - Linking sales, operational data, and finance for efficient and reliable processes.
  - ChatGPT combined with hand-made templates for drafting sales pitches.
  - Smart UI to support new users using AI methods.

The Virtual Forge, Director (2008 to 2016)

Software consultancy, especially AI problem solving for the private sector. Clients included: Harrods, the BBC, the Home Office, the Ministry of Defence, plus SMEs and start-ups.
Work included:
- Consultancy on AI projects for large and small organisations.
- Fractional CTO service for start-ups.
  - Establishing projects and building teams for successful start-ups ZoneFox, Buddhify, QikServe, and Kotikan.
- In-house R&D, including SoDash which included a language modelling engine.

Selected projects:

SoDash – AI for social media
Social media analysis & engagement product. Using language models to streamline workflows. SoDash allowed companies to setup flexible hybrid workflows, combining custom LLMs with if-then automation, and of course, people. Integrated with Twitter, Facebook, email & blogs. Used by Harrods, Selfridges, and Virgin Trains. Grew to £500,000 annual recurring revenue.

CyberSecurity AI, for ZoneFox / Fortinet
Developed their initial AI system for detecting potentially malicious computer behaviour. I then helped setup the in-house AI team. ZoneFox achieved a successful exit, with a sale to multinational cybersecurity company Fortinet.

FitBits for Cows, for ITI Techmedia, now Afimilk
Taking data from cows with fit-bit like sensors, and using machine learning techniques to determine the cow's condition. The company grew and achieved a successful exit, and the system is now deployed as a valuable herd management tool.

Policy Modelling and Workflow Tools, for the University of Edinburgh
Worked with staff to model the existing process with machine learning, develop new policy, assess its likely impact – then make workflow tools. Results: improved efficiency and policy objectives.

Financial Logistics, for the Royal Bank of Scotland
Devised an optimised just-in-time approach to minimise the running costs of a large ATM network. Estimated cost savings of £7 million per annum, plus reduced exposure to crime.

Mercury, Board of Trustees (ongoing, part time)

Charity making micro-grants to enable grass-roots education and community action. Supporting projects from primary school education to tree-planting.

Invest-in-Change (ongoing, part-time)
Supported funding for innovative companies with positive social and environmental impact, by connecting investors with business-for-good opportunities.
University of Dundee, AI Researcher (part-time, 2016)
Software R&D on discourse analysis using large language models.
ThinkTank Mathematics, Director and Senior AI Consultant (2006 to 2008)
Software consultancy, especially AI problem solving for the private sector.
Realtime Worlds, Software Engineer (2005 to 2006)
Tools development team, using generative algorithms to deliver efficient workflows.
Edinburgh University, Researcher (2004 to 2005, and 2014)
R&D on a mathematics editor, using language parsing linked to proof engines.
Micromuse (IBM), Junior Software Developer (1998 to 1999)
Website and web-app development.

Industry Engagement

- IAB TechLab Sustainability Group (2023-2024).
  Contributing to the development of standards for carbon measurement in digital advertising.
- Scotland IS: Steering Group (2022)
- Talks for Digit, Bayes Centre (University of Edinburgh), PeerWorks, DataLab, DataFest and others.

Qualifications

PhD Artificial Intelligence
Department of Informatics, University of Edinburgh, 2004

MSc Artificial Intelligence – passed with distinction
Department of Informatics, University of Edinburgh, 2000

BA Mathematics - 1st class honours
University of Cambridge, 1999

A levels - straight As
Maths, Further Maths, History, & Physics

Technical Skills
Languages: Expert in Java, Python, JavaScript, html, css. Experienced in C++, C#, PHP, Lisp.
Databases: SQL, MongoDB, ElasticSearch
Tools: Git, GitHub Actions, Maven, Jenkins, TeamCity
AI: LLMs, data-science algorithms, OpenAI, HuggingFace, PyTorch, TensorFlow
Cloud ecosystems: AWS, Azure, Google