Andrew Bolster

Resumé

Technical skills & interests

Programming	Analysis	Research Interests
○ Python	○ Numpy Suite	autonomy, machine learning, distributed systems, data visualisation & analysis, wireless localisation, IoT, FOSS, Linux/Unix, GPGPU, FPGA, network security, mobile computation
○ C/C++	○ Pandas	
○ Matlab	○ Jupyter	
○ Ruby	○ cuBLAS	
○ Java	○ AWS Lambda	
○ Erlang	○ Theano	
○ R	○ sk-learn	
○ Arduino		

Education

2011–2016	**PhD**, *University of Liverpool*, Liverpool, UK.
Thesis Title	An Investigation into Trust & Reputation Frameworks for Collaborative Teams of Autonomous Underwater Vehicles"
Supervisors	Prof. A. Marshall (UoL), Prof. Jean-Guy Fontaine (NATO), Paul Caseley (DSTL)
Description	Physical & Communicative trust for autonomous networks in marine environments as part of a joint UK-FR PhD programme.
	Including collaborations with; National Physical Laboratory (NPL) & Plextek Ltd. on Enhanced Kalman Filtering for acoustic marine localisation in GPS denied environments & NATO Centre for Maritime Research & Experimentation on REMUS payload scoping & potential malicious misbehaviours of autonomous AUVs
2006–2011	**MEng**, *Queens' University Belfast*, Belfast, UK, *1st Electronics & Software Engineering*.
Specialisations	High Performance Computing, Digital Communications, Machine Learning
Thesis title	High-Speed bit-loading algorithms for Dynamic Spectrum Management in ADSL
Supervisors	Prof. A. Marshall, Dr. A.McKinley
Description	GPGPU Acceleration of last-mile internet connections, leveraging parallel, distributed, greedy optimisation techniques using a combination of CUDA, OpenMP, Python, & C/C++

Experience

Vocational

2013–2014   **Product Manager / Research Engineer**, *TOM Ltd.*, Liverpool.

Contributed to ongoing development & refinement of the core SpriteGuard product structure & marketing, including fund-facing discussion & trade show representation.
Detailed achievements:

- Primary role in Market-Fit analysis & financial forecasting;
- Engaged in roll-out planning & UX investigation
- Contributed to back end architecture design for distributed analysis platform

2013   **Analyst**, *Defence Science & Technology Laboratory*, Portsdown West, UK.

Synthesised research between Information Management & Naval Systems departments to generate a coordinated, data driven approach to maritime autonomy & its potential applications; significant contribution to "Five-Eyes" Autonomy Exchange project.

2011   **Embedded Engineer**, *PC Engines GmbH*, Zurich, Switzerland.

Implementing & prototyping next generation embedded computing platforms & contributing to the Coreboot, SerialICE & FlashROM Open source Projects.

2009–2010   **Technical Consultant**, *Navigator Blue*, Belfast, UK.

Application of technical knowledge & experience around Social Marketing & Customer Relationship Management to a leading Marketing & Advertising Firm.
Detailed Achievements:

- Contribution to successful client tender presentations of social analytics for engagement
- Implementation & Coordination of Google Analytics tracking across client sites
- PoC demonstrations of Targeted Advertising using social geo-location & RFID/NFC engagement

2008–2009   **Software Test Engineer**, *Ericsson LMI*, Athlone, ROI.

Integration test engineer for multi-stakeholder, multi-component product moving from a waterfall development model towards a Agile, CI development pathway. Detailed Achievements:

- Implementation of automated unit testing to Global 4G test infrastructure
  - Reduced pre-deployment testing from 3 days to less than an hour
  - Included reporting integration from Open Source toolkits to internal proprietary reporting framework
- Server-Side performance benchmarking, optimisation, & deployment planning for SPARC/x86 transition
  - Real-data testing on MySQL/Erlang based backends
  - Identified undocumented inter-project interfaces/dependencies

Voluntary

2011–today   **Founding Director**, *Farset Labs*, Belfast.

Created Farset Labs in response to a demonstrated need for an independent, non-profit, charitable community of technology innovators, providing them a open space & shared resources to experiment, explore, & grow themselves, their projects, & relationships with local & global business.

Recognising Farset's location in an area of high deprivation meant we had an opportunity to make a positive impact. I have led successful initiatives to bring in local young people into the labs to experience tech in a way that inspires & helps them see new opportunities Key Achievements:

- Launching a range of "First" initiatives for Northern Ireland
  - First Public Global Game Jam
  - First Volunteer-run CoderDojo
  - First Raspberry Jam
  - First Data Journalism user group
  - First Public Open Data Hackathon
  - First "MakerAssembly" conference held outside the UK Mainland
- Facilitated & Led a series of collaborations including:
  - Community Healthcare Reablement project with Ulster University
  - Exhibition generation for Princes Trust NI
  - Exhibition generation for BBC's Make It Digital programme

2015–today   **Member**, *DFPNI Open Data Advisory Board*, Belfast.

As a result of my role as a champion of digital start-ups in Northern Ireland I have been invited by the Department of Finance & Personnel to be part of the industry advisory board for the Northern Ireland Executives Open Data Strategy

Awards, Honours, & Notable Speaking Engagements

- BelTech 2016 Innovation Engineering Panelist
- Open Data Day NI 2016 Speaker
- InterTradeIreland All-Island Innovation Conference 2014 Speaker
- TEDxBelfast 2013 Speaker
- NESTA Innovation in Northern Ireland 2013 Conference Speaker
- Belfast Business Top 50 2012 for entrepreneurial leadership related to Farset Labs
- QUB TG. Christie Award for most promising incoming research student
- QUB Linggard Prize for best Masters project in Communication Engineering
- IET Excellence Grant for Academic Progress & STEM outreach activities
- IET Present Around The World UK Finalist for presentation on Social Media Security & Online Data Safety in the emerging personal-data economy
- City & Guilds Licentiateship in Information Technology for Software Engineering work undertaken at Ericsson

Professional Associations

Member   Institution of Engineering & Technology

Marine Technology Society

Notable Publications

Bolster, Andrew. *Analysis of Trust Interfaces in Autonomous and Semi-Autonomous Collaborative MHPC Operations*. Tech. rep. The Technical Cooperation Program, 2014.

– *GPS III: Where are we and Where are we going?* 2015. URL: http://www.makeuseof.com/tag/gps-iii-going/.

– *How do Optical and Quantum Computers work*. 2014. URL: http://www.makeuseof.com/tag/optical-quantum-computers-work/.

– *How The Future Gigabit Internet Is Likely To Play Out*. 2014. URL: http://www.makeuseof.com/tag/future-gigabit-internet-likely-play/.

Bolster, Andrew and Alan Marshall. "A Multi-Vector Trust Framework for Autonomous Systems". In: *2014 AAAI Spring Symp. Ser.* Stanford, CA, 2014, pp. 17–19. ISBN: 9781577356448. URL: http://www.aaai.org/ocs/index.php/SSS/SSS14/paper/viewFile/7697/7724.

– "Analytical Metric Weight Generation for Multi-Domain Trust in Autonomous Underwater MANETs". In: *IEEE UComms* (2016). URL: http://bolster.online/bolster/16%7B%5C_%7DUComms%7B%5C_%7Dbolster%7B%5C_%7Dpreprint.pdf.

– "Physical Behaviours for Trust Assessment in Autonomous Underwater MANETs - Submitted". In: *13th IEEE Int. Conf. Mob. Ad hoc Sens. Syst.* 2016. URL: http://bolster.online/bolster/16%7B%5C_%7DMASS%7B%5C_%7Dbolster%7B%5C_%7Dpreprint.pdf.

– "Single and Multi-metric Trust Management Frameworks for Use in Underwater Autonomous Networks". In: *Trust. 2015 IEEE*. Vol. 1. Aug. 2015, pp. 685–693. URL: http://ieeexplore.ieee.org/xpls/abs%7B%5C_%7Dall.jsp?arnumber=7345343.