Andrew Bolster

Resumé

About

Data Scientist with a range of skills and experiences across defence research, business, community and entrepreneurial fields, looking for new challenges from mid-2016

Concluding PhD Research at the University of Liverpool as part of a Anglo-French Defence Programme on the use of Trust in Physical and Communications Behaviour Assessments for Autonomous Submarines for Marine Survey and Monitoring.

Specific interests in and around distributed systems, 'trust' in insecure environments, autonomous and mixed-human-autonomous systems, software engineering best practices, STEM outreach, community management and development, market analysis and innovation strategy.

Education

2011–2016	**PhD**, *University of Liverpool*, Liverpool, UK.
title	An Investigation into Trust and Reputation Frameworks for Collaborative Teams of Autonomous Underwater Vehicles"
supervisors	Prof. A. Marshall (UoL), Prof. Jean-Guy Fontaine (NATO), Paul Caseley (DSTL)
	Physical and Communicative trust for autonomous networks in marine environments as part of a joint UK-FR PhD programme.
	Including collaborations with; National Physical Laboratory (NPL) and Plextek Ltd. on Enhanced Kalman Filtering for acoustic marine localisation in GPS denied environments and NATO Centre for Maritime Research and Experimentation on REMUS payload scoping and potential malicious misbehaviours of autonomous AUVs
2006–2011	**MEng**, *Queens' University Belfast*, Belfast, UK, *1st Electronics & Software Engineering*.
specialisations	High Performance Computing, Digital Communications, Algorithmic Analysis, 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, and C/C++

Experience

Vocational

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

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

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

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

Coordinating research between Information Management and Naval Systems departments to synthesize a coordinated, data driven approach towards maritime autonomy and its potential applications.

Culminated in significant contribution to a "Five-Eyes" Autonomy Exchange project.

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

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

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

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

- Contribution to successful client tender presentations of social analytics for engagement
- Implementation and Coordination of Google Analytics tracking across client sites
- PoC demonstrations of Targeted Advertising using social geo-location and 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, and 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 and shared resources to experiment, explore, and grow themselves, their projects, and relationships with local and 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 and 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 and 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
- Over it's four year history, we

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 and Personnel to be part of the industry advisor board for the Northern Ireland Executives Open Data Strategy

Languages

english   **Native**

french   **Basic**

Technical skills and interests

Programming	Analysis	research interests
- Python	- Numpy Suite	autonomy, machine learning, distributed systems, data visualisation and 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		

Awards and Honours

- 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 and STEM outreach activities
- IET Present Around The World UK Finalist for presentation on Social Media Security and 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 and 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`.