

Iain R. Learmonth MScI. (he/him)

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EMPLOYMENT **Freelance.**

Software Developer and Systems Administrator **May 2020 to —**
Software development for networking, communications, monitoring and analytics applications. Managing deployments of the software with orchestration tools. Administration of Linux and OpenBSD systems. Design and implementation of cloud-hosted solutions (AWS).

The Tor Project, The Internet.

Metrics Team, Software Developer **July 2018 to April 2020**
Maintenance of software used by Tor Project for collecting and analysing data from the Tor network. Managing deployments of the software with orchestration tools. Supporting the development of the Tor client software and the health of the Tor network through interpreting the analysed data. Supporting external researchers in studying the Tor network.

University of Aberdeen, Aberdeen, UK.

Electronics Research Group, Research Assistant **June 2013 to June 2018**
Development of software used for large-scale Internet measurement campaigns to inform new standardisation work at the Internet Engineering Task Force. Dissemination of the developed software and measurement results through academic conferences, and through blog posts for a wider audience. Documenting developed tools to allow other researchers to both reproduce experimental results and develop new experiments on the platform.

EDUCATION **University of Aberdeen**, Aberdeen, UK. **September 2009 to 2014**
MSci, Computing Science (with Industrial Placement) with First Class Honours

OTHER QUALIFICATIONS **Radio Communications Foundation**
Advanced Level Certificate in Radio Communication **October 2016**

VOLUNTEER SERVICE **British Red Cross**, Aberdeen, Scotland.
Emergency Response Volunteer **August 2020 to —**
Providing practical and emotional support to individuals, as part of a team, in support of category 1 and 2 responders and other agencies following an emergency.

The Debian Project, The Internet.

Developer **September 2014 to October 2020**
Packaging and documentation efforts for software in Debian. with a focus on software relating to amateur radio, and tools for computer networking and security research.

57North Hacklab, Aberdeen, UK.

Founding Director

February 2014 to October 2014

As one of the founding directors of Aberdeen's hackerspace, I assisted with setting up the infrastructure required for the day-to-day running of the hackerspace and participated in the formation and running of a private limited company.

SELECTED
PUBLICATIONS

Ana Custura, Iain Learmonth, and Gorry Fairhurst. Measuring mobile performance in the Tor network with OnionPerf. In *Proceedings of the 2019 Network Traffic Measurement and Analysis Conference (TMA '19)*, Piscataway, NJ, USA, Jun 2019. IEEE

Ana Custura, Gorry Fairhurst, and Iain Learmonth. Exploring usable path MTU in the Internet. In *Proceedings of the 2018 Network Traffic Measurement and Analysis Conference (TMA '18)*, Piscataway, NJ, USA, Jun 2018. IEEE

Iain R. Learmonth, Brian Trammell, Mirja Kuehlewind, and Gorry Fairhurst. PATH-spider: A tool for active measurement of path transparency. In *Proceedings of the 2016 Applied Networking Research Workshop (ANRW '16)*, pages 62–64, New York, NY, USA, Jul 2016. ACM

Brian Trammell, Mirja Kuehlewind, Damiano Boppert, Iain Learmonth, Gorry Fairhurst, and Richard Scheffenegger. Enabling internet-wide deployment of explicit congestion notification. In Jelena Mirkovic and Yong Liu, editors, *Proceedings of the 2015 Passive and Active Measurement Conference (PAM '15)*, pages 193–205. Springer International Publishing, 2015

INVITED
TALKS

Iain R. Learmonth and Gorry Fairhurst. Mobile measurement of path transparency. 2nd Mobile Network Measurement Workshop (MNM '18), 2018

TECHNICAL
SKILLS

I have both software development and systems administration experience, with a background in Internet engineering and computer networking.

Programming: Recently I have worked on projects using Python, Java, shell scripting, C, Make, and SQL. I have extensive experience with the use of the git version-control system.

Software Engineering: I have experience with the use of issue tracking and project management systems (GitHub, Trac) in the context of remote work. I also have experience using Travis CI with GitHub, and GitLab CI.

Systems Administration: I have experience with virtualisation technologies (Xen, KVM, vmd) and the configuration and operation of common server software (Apache, bind, nsd, Postfix, OpenSMTPD, unbound) on Debian Linux and OpenBSD. I have extensive experience with packaging processes for Debian and derivative distributions (dpkg, debhelper).

Cloud and Orchestration: I have working knowledge of AWS CloudFormation and EC2. I have experience with the use of Ansible for configuration management and system administration tasks.

Internet Engineering: I am familiar with the TCP/IP stack with deep knowledge of Internet network and transport protocols. I have experience with Internet measurement for performance and functional testing.

Network Administration: I have experience configuring Cisco and Ubiquiti routers, and Cisco, Juniper, HP and Ubiquiti switches. Familiar with the configuration and operation of network services (DNS, DHCP, SLAAC, NTP).

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