

Simon Knight

Cisco Systems,
Level 30, 91 King William Street
Adelaide, 5000, Australia

+61 0422 586 242
simon.knight@gmail.com
<http://scholar.google.com.au/citations?user=BJ1Efr8AAAAJ>

Education

UNIVERSITY OF SOUTH AUSTRALIA

2015 – 2017 PhD Computer and Information Science, degree conferred February 2017. Thesis topic: *Abstractions and Transformations for Automated Data Network Configuration*.

UNIVERSITY OF ADELAIDE

2009 – 2014 PhD Candidate, *Electrical & Electronic Engineering* (Transferred candidature)

Aug 2009 Bachelor of Economics

Dec 2008 Bachelor of Engineering (Telecommunications), First Class Honours

Final year subjects: Telecommunications, Communications, Computer Networks and Applications, Signal Processing, Advanced Telecommunications, Optical Communications, Communication Network Design

Employment

CISCO SYSTEMS

2016 – Software Engineer, Learning at Cisco.

Virtual Internet Routing Lab (VIRL/CML) platform. <http://virl.cisco.com>

- Developed AutoNetkit configuration engine from PhD code to component of shipping product.
- Designed and developed Live Visualisation for dynamic display of run-time topology information (traceroute, OSPF, BGP, STP, ...).
- Designed & developed browser based editor UI for VIRL topology authoring and editing.
- VIRL customer discussions at Cisco Live: San Francisco 2013, Cancun 2013, Melbourne 2014, San Diego 2015.

CISCO SYSTEMS

2012 – 2016 Software Engineer, Chief Technology and Architecture Office. Work on VIRL project.

UNIVERSITY OF ADELAIDE

2009 Research Assistant, TRC Mathematical Modelling. Ad-hoc network configuration (OLSRD, BATMAND) and packet analysis.

INTERNODE

2007 – 2009 Software Support Team, Technical Operations. Operations systems maintenance in Java & Perl.

2006 – 2007 Research & Development, Agile Communications. Developed monitoring for rural wireless deployment.

2005 – 2007 Technical Support: Level one support for ADSL, web services, email, VoIP.

Technical Skills and Interests

NETWORKING

Configuration of OSPF, IS-IS, BGP and MPLS across IOS, IOS-XR, NX-OS, Junos and Quagga, and experience in approaches to configuration automation.

SOFTWARE DEVELOPMENT

- Extensive Python experience with design and ongoing development of large-scale long-lived production codebases, including distributed and multi-threaded systems.
- Experience with front-end design in Javascript (jQuery, Backbone, Bootstrap)
- Experience in Java, PHP, Latex, Linux, XML, SQL, Matlab, Bash, Git, Go, Perl, and ZeroMQ.

INTERESTS

Infrastructure Automation, Data Visualisation, User Experience, Data Networking and Telecommunications, Software Engineering, Systems Engineering, API Design, Workflow Development, Business Analysis.

Refereed Journal Papers

2012 **Simon Knight**, Nickolas Falkner, Hung X. Nguyen, Paul Tune, and Matthew Roughan. I Can See For Miles: Re-visualising The Internet, *IEEE Network Magazine*, November, 2012.

2011 **Simon Knight**, Hung X. Nguyen, Nickolas Falkner, Rhys Bowden, and Matthew Roughan. The Internet Topology Zoo, *IEEE Journal on Selected Areas in Communications*, vol 29, no 9, 2011.

Refereed Conference Papers

2013 **Simon Knight**, Hung X Nguyen, Iain Phillips, Olaf Maennel, Randy Bush, Nickolas Falkner, and Matthew Roughan. An Automated System for Emulated Network Experimentation, *ACM CoNEXT 2013*, Santa Barbara, California.

2011 Rhys Bowden, Hung X. Nguyen, Nickolas Falkner, **Simon Knight**, and Matthew Roughan. Planarity of Data Networks, *International Teletraffic Congress*, September, 2011, San Francisco.

2011 Eric Parsonage, H. X. Nguyen, Rhys Bowden, **Simon Knight**, Nickolas Falkner and Matthew Roughan. Generalized Graph Products for Network Design and Analysis, *The 19th IEEE International Conference on Network Protocols (ICNP 2011)*.

2010 Hung Nguyen, Matthew Roughan, **Simon Knight**, Nick Falkner, Olaf Maennel, and Randy Bush. How to Build Complex, Large-Scale Emulated Networks, *TridentCom 2010*; Berlin, Germany.

2009 **Simon Knight**, Simon Moschou, and Matthew Sorell. Analysis of Sensor Photo Response Non-Uniformity in RAW images, *e-Forensics 2009*; Adelaide, Australia;

Refereed Demonstrations and Posters

2014 Joel Obstfeld, **Simon Knight**, Ed Kern, Qiang Sheng Wang, Tom Bryan, and Dan Bourque. VIRL: The Virtual Internet Routing Lab. Demonstration. *SIGCOMM 2014*, Chicago, USA.

2013 **Simon Knight**. Automated Configuration and Measurement of Emulated Networks with AutoNetkit. Demonstration. *SIGCOMM 2013*, Hong Kong.

2012 **Simon Knight**, Matthew Roughan, Askar Jaboldinov, Olaf Maennel, and Iain Phillips. AutoNetkit: Simplifying Large Scale, Open-Source Network Experimentation. Poster. *SIGCOMM 2012*, Helsinki, Finland.

2012 Ingmar Poese, Benjamin Frank, **Simon Knight**, Niklas Semmler, and Georgios Smaragdakis. PaDIS Emulator: An Emulator to Evaluate CDN-ISP Collaboration. Demonstration. *SIGCOMM 2012*

Unrefereed Publications

2013 **Simon Knight**, Hung Nguyen, Nickolas Falkner, and Matthew Roughan. Realistic Network Topology Construction and Emulation from Multiple Data Sources. Technical Report. *May, 2012*, The University of Adelaide.

2012 **Simon Knight**, Matthew Roughan, Askar Jaboldinov, Olaf Maennel, and Iain Phillips. Network Configuration: From Abstraction to Emulation. Report. *January, 2012*, The University of Adelaide.

Presentations

2013 An Automated System for Emulated Network Experimentation, *CoNEXT 2013*, Santa Barbara, California.

2013 Using Python to design, configure, and measure large-scale networks; Session Presentation, *PyCon Australia 2013*, Hobart, Tasmania.

2012 AutoNetkit, Short Talk, *ACM Sigcomm Student Research Competition*, Helsinki, Finland, AusNOG 2012, *Australian Network Operators Group*, Melbourne.

2012 AutoNetkit; Seminar Presentation, *Google*, Sydney, Feb 2012; NICTA, Sydney, March 2012; *Swinburne University*, Melbourne, March 2012; *School of Electrical & Electronic Engineering, University of Adelaide*, March 2012.

2011 AutoNetkit Summary, *Junosphere day*, Loughborough University (via Skype), December 2011.

2010 Formal Methods for Data Network Design, Verification, and Configuration, *Seminar Presentation, School of Electrical & Electronic Engineering, University of Adelaide*; August 2010.

2010 How to Build Complex, Large-Scale Emulated Networks, *TridentCom 2010*; Berlin, Germany, May 2010; *Deutsche Telekom Laboratories, Technische Universität Berlin*, Germany, May 2010; *The University of Loughborough*, United Kingdom, May 2010.

2010 AutoNetkit, and Literature Review of Related Work; *WODNAFO 10 — the Workshop on Data Networks as Formal Objects*; Adelaide, Australia; Feb 2010.

2009 Analysis of Sensor Photo Response Non-Uniformity in RAW images, (co-presented), *e-Forensics 2009*; Adelaide, Australia.

Awards

2014 Cisco Pioneer Award for Engineering Innovation, awarded to VIRL team. Presented by John Chambers.

2010, 2012, 2013 ACM SIGCOMM Travel Grant

2009 – 2012 Australian Postgraduate Award PhD scholarship

2009 Development Economics III Excellence Award

2008 The DSTO Surveillance Systems Undergraduate Prize

2008 Dean's Merit Certificate for Outstanding Academic Achievement (Electrical & Electronic Engineering)

Teaching

2009 – 2012 Tutoring and Practical Demonstration: *Computer Networks and Applications* (2009, 2010), *Electrical Engineering 1A* (2010, 2012), *Project Management for Electrical Engineers* (2010, 2011), *Computer Science 1B* (2009), *Introduction to C and Matlab* (2009)

Projects

2011 The Internet Topology Zoo <http://topology-zoo.org>

2009 – AutoNetkit <http://www.autonetkit.org>

Code for both projects is available on GitHub <https://github.com/sk2>.

Service

- 2014 – Member, USENIX
- 2011, 2012 President, University of Adelaide IEEE Student Branch. Vice-President, 2008, 2010.
- 2011–2012 Committee Member, IEEE SA
- 2010, 2011 Organiser, School of Electrical & Electronic Engineering Research Expo
- 2008 – Member, ACM and SIGCOMM
- 2006 – 2013 Student Member, IEEE