



Department of Computer Science and Technology

Systems Research Group – NetOS

Publications

Publications by year | 2016 | 2015 | 2014 | 2013 | 2012 | 2011 | 2010 | 2009 | 2008 | 2007 | 2006 | 2005 | 2004 | 2003 | 2002 | 2001 | 2000 | 1999 | 1998 | 1997 | 1996 | 1995 | 1994 |

2016 Publications

- **FairCache: Introducing Fairness to ICN Caching**
Liang Wang, Gareth Tyson, Jussi Kangasharju, and Jon Crowcroft
Proceedings of the 24th IEEE International Conference on Network Protocols (ICNP 2016), Singapore, Nov. 2016.
[PDF] [IEEE DL]
- **On Content Indexing for Off-Path Caching in Information-Centric Networks**
Suzan Bayhan, Liang Wang, Joerg Ott, Jussi Kangasharju, Arjuna Sathiseelan, and Jon Crowcroft
Proceedings of the 3rd ACM Conference on Information-Centric Networking (ICN 2016), Kyoto, Sept. 2016.
[PDF] [ACM DL]
- **Kvasir: Scalable Provision of Semantically Relevant Web Content on Big Data Framework**
Liang Wang, Sotiris Tasoulis, Teemu Roos, and Jussi Kangasharju
IEEE Transactions on Big Data, May, 2016
[PDF] [IEEE DL]
- **Hybrid Renewable Energy Routing for ISP Networks**
Julien Mineraud, Liang Wang, Sasitharan Balasubramaniam, and Jussi Kangasharju.
Proceedings of IEEE International Conference on Computer Communications (INFOCOM'16). San Francisco, CA, USA, April 2016.
[PDF] [IEEE DL]

2015 Publications

- **Pro-Diluvian: Understanding Scoped-Flooding for Content Discovery in Information-Centric Networking**
Liang Wang, Suzan Bayhan, Joerg Ott, Jussi Kangasharju, Arjuna Sathiseelan, and Jon Crowcroft.
Proceedings of the 2nd ACM Conference on Information-Centric Networking (ICN 2015). San Francisco, CA, USA, October 2015.
[PDF] [ACM DL] [Won the Best Paper Award]
- **Clean Application Compartmentalization with SOAAP**
Khilan Gudka, Robert N.M. Watson, Jonathan Anderson, David Chisnall, Brooks Davis, Ben Laurie, Ilias Marinos, Peter G. Neumann, and Alex Richardson.
Proceedings of the 22nd ACM Conference on Computer and Communications Security (CCS 2015). Denver, CO, USA, October 2015.
[PDF] [to appear]
- **Broom: sweeping out Garbage Collection from Big Data systems**
Ionel Gog, Jana Giceva, Malte Schwarzkopf, Kapil Viswani, Dimitrios Vytiniotis, Ganesan Ramalingan, Manuel Costa, Derek Murray, Steven Hand and Michael Isard
Proceedings of the 15th USENIX/SIGOPS Workshop on Hot Topics in Operating Systems (HotOS 2015)
[PDF] [to appear]
- **Resolving datacenter power bill disputes: the energy-performance trade-offs of consolidation**
Angelos Chatzipapas, Dimosthenis Pediaditakis, Charalampos Rotsos, Vincenzo Mancuso, Jon Crowcroft, Andrew W. Moore
Proceedings of the 2015 ACM Sixth International Conference on Future Energy Systems (e-Energy 2015), Bangalore, India, July 2015.
[PDF]

- **Queues don't matter when you can JUMP them!**
 Matthew P. Grosvenor, Malte Schwarzkopf, Ionel Gog, Robert N.M. Watson, Andrew W. Moore, Steven Hand and Jon Crowcroft
 Proceedings of the 12th Symposium on Networked Systems Design and Implementation (NSDI 2015). Oakland, CA, USA, May 2015.
[\[PDF\]](#) [\[usenix\]](#)
- **CHERI: A Hybrid Capability-System Architecture for Scalable Software Compartmentalization**
 Robert N. M. Watson, Jonathan Woodruff, Peter G. Neumann, Simon W. Moore, Jonathan Anderson, David Chisnall, Nirav Dave, Brooks Davis, Khilan Gudka, Ben Laurie, Steven J. Murdoch, Robert Norton, Michael Roe, Stacey Son, and Munraj Vadera.
 Proceedings of the 36th IEEE Symposium on Security and Privacy ("Oakland"), San Jose, California, USA, May 2015.
[\[PDF\]](#)
- **Bluespec Extensible RISC Implementation: BERI Software Reference**
 Robert N. M. Watson, David Chisnall, Brooks Davis, Wojciech Koszek, Simon W. Moore, Steven J. Murdoch, Peter G. Neumann, Jonathan Woodruff.
 Technical Report UCAM-CL-TR-869, University of Cambridge, Computer Laboratory, April 2015.
[\[PDF\]](#)
- **Bluespec Extensible RISC Implementation: BERI Hardware Reference**
 Robert N.M. Watson, Jonathan Woodruff, David Chisnall, Brooks Davis, Wojciech Koszek, A. Theodore Marketos, Simon W. Moore, Steven J. Murdoch, Peter G. Neumann, Robert Norton, and Michael Roe.
 Technical Report UCAM-CL-TR-868, University of Cambridge, Computer Laboratory, April 2015.
[\[PDF\]](#)
- **Musketeer: All for One, One for all in Data Processing Systems**
 Ionel Gog, Malte Schwarzkopf, Natacha Crooks, Matthew P. Grosvenor, Allen Clement and Steven Hand
 Proceedings of the 10th European Conference on Computer Systems (EuroSys 2015). Bordeaux, France, April 2015.
[\[PDF\]](#) [\[ACM DL\]](#)
- **Jump the queue to lower latency**
 Matthew P. Grosvenor, Malte Schwarzkopf, Ionel Gog and Andrew W. Moore
 USENIX ;login: magazine, April 2015 issue.
[\[usenix\]](#)
- **Beyond the PDP-11: Processor support for a memory-safe C abstract machine**
 David Chisnall, Colin Rothwell, Brooks Davis, Robert N.M. Watson, Jonathan Woodruff, Simon W. Moore, Peter G. Neumann and Michael Roe.
 Proceedings of Architectural Support for Programming Languages and Operating Systems (ASPLOS 2015), Istanbul, Turkey, March 2015.
[\[PDF\]](#)
- **Raft Refloated: Do We Have Consensus?**
 Heidi Howard, Malte Schwarzkopf, Anil Madhavapeddy and Jon Crowcroft
 ACM SIGOPS Operating Systems Review, Special Issue on Repeatability and Sharing of Experimental Artifacts. January 2015.
[\[PDF\]](#)

2014 Publications

- **Capability Hardware Enhanced RISC Instructions: CHERI Instruction-Set Architecture**
 Robert N.M. Watson, Peter G. Neumann, Jonathan Woodruff, Jonathan Anderson, David Chisnall, Brooks Davis, Ben Laurie, Simon W. Moore, Steven J. Murdoch, and Michael Roe.
 Technical Report UCAM-CL-TR-864, University of Cambridge, Computer Laboratory, December 2014.
[\[PDF\]](#)
- **Faithful Reproduction of Network Experiments**
 Dimosthenis Pediaditakis, Charalampos Rotsos, and Andrew W. Moore
 10th ACM/IEEE Symposium on Architectures for Networking and Communications Systems (ANCS), Marina del Rey, CA, USA, October 2014.
[\[PDF\]](#)
- **Design and Implementation of the FreeBSD Operating System, 2nd Edition**
 Marshall Kirk McKusick, George V. Neville-Neil, and Robert N. M. Watson
 Pearson Education, Boston, MA, USA, September 2014.
[\[Book\]](#)

- **The architecture of innovation: Tracking face-to-face interactions with ubicomp technologies**
 Chloë Brown, Christos Efstratiou, Ilias Leontiadis, Daniele Quercia, Cecilia Mascolo, James Scott and Peter Key
 In Proceedings of the ACM International Joint Conference on Pervasive and Ubiquitous Computing (Ubicomp 2014). Seattle, Washington, USA. September 2014
- **Network Stack Specialization for Performance**
 Ilias Marinos, Robert N. M. Watson, and Mark Handley
 In Proceedings of ACM SIGCOMM 2014 Conference (SIGCOMM'14), Chicago, IL, USA, August 17–22, 2014.
[\[PDF\]](#)
- **The CHERI capability model: Revisiting RISC in an age of risk**
 Jonathan Woodruff, Robert N. M. Watson, David Chisnall, Simon W. Moore, Jonathan Anderson, Brooks Davis, Ben Laurie, Peter G. Neumann, Robert Norton, and Michael Roe
 In Proceedings of the 41st International Symposium on Computer Architecture (ISCA 2014), Minneapolis, MN, USA, June 14–16, 2014.
[\[PDF\]](#)
- **Capability Hardware Enhanced RISC Instructions: CHERI Instruction-Set Architecture**
 Robert N.M. Watson, Peter G. Neumann, Jonathan Woodruff, Jonathan Anderson, David Chisnall, Brooks Davis, Ben Laurie, Simon W. Moore, Steven J. Murdoch, and Michael Roe
 Technical Report UCAM-CL-TR-850, University of Cambridge, Computer Laboratory, April 2014.
[\[PDF\]](#)
- **Capability Hardware Enhanced RISC Instructions: CHERI User's Guide**
 Robert N.M. Watson, David Chisnall, Brooks Davis, Wojciech Koszek, Simon W. Moore, Steven J. Murdoch, Peter G. Neumann, and Jonathan Woodruff
 Technical Report UCAM-CL-TR-851, University of Cambridge, Computer Laboratory, April 2014.
[\[PDF\]](#)
- **Bluespec Extensible RISC Implementation: BERI Hardware Reference**
 Robert N.M. Watson, Jonathan Woodruff, David Chisnall, Brooks Davis, Wojciech Koszek, A. Theodore Marketos, Simon W. Moore, Steven J. Murdoch, Peter G. Neumann, Robert Norton, and Michael Roe
 Technical Report UCAM-CL-TR-852, University of Cambridge, Computer Laboratory, April 2014.
[\[PDF\]](#)
- **Bluespec Extensible RISC Implementation: BERI Software Reference**
 Robert N.M. Watson, David Chisnall, Brooks Davis, Wojciech Koszek, Simon W. Moore, Steven J. Murdoch, Peter G. Neumann, and Jonathan Woodruff
 Technical Report UCAM-CL-TR-853, University of Cambridge, Computer Laboratory, April 2014.
[\[PDF\]](#)
- **TESLA: Temporally Enhanced System Logic Assertions**
 Jonathan Anderson, Robert N. M. Watson, David Chisnall, Khilan Gudka, Brooks Davis, and Ilias Marinos
 In Proceedings of The 2014 European Conference on Computer Systems (EuroSys 2014), Amsterdam, The Netherlands, April 14–16 2014.
[\[PDF\]](#)
- **Tracking serendipitous interactions: How individual cultures shape the office**
 Chloë Brown, Christos Efstratiou, Ilias Leontiadis, Daniele Quercia and Cecilia Mascolo
 In Proceedings of the 17th ACM Conference on Computer Supported Cooperative Work and Social Computing (CSCW 2014). Baltimore, Maryland, USA. February 2014

2013 Publications

- **Human Versus Machine - Testing Validity and Insights of Manual and Automated Data Gathering Methods in Complex Buildings**
 Kerstin Sailer, Rositsa Pachilova and Chloë Brown
 In Proceedings of the Ninth International Space Syntax Symposium. Seoul, South Korea. November 2013
- **A Place-focused Model for Social Networks in Cities**
 Chloë Brown, Anastasios Noulas, Cecilia Mascolo and Vincent Blondel
 In Proceedings of the IEEE/ASE International Conference on Social Computing (SocialCom 2013). Washington D.C., USA. September 2013

- **Social and place-focused communities in location-based online social networks**
 Chloë Brown, Vincenzo Nicosia, Salvatore Scellato, Anastasios Noulas and Cecilia Mascolo
 In European Physical Journal B 86 (6), 290 (2013)
- **Low Power Optical Transceivers for Switched Interconnect Networks**
 Yury Audzevich, Philip M. Watts, Andrew West, Alan Mujumdar, Jon Crowcroft, Andrew W. Moore
 IEEE 2013 International Conference on Advanced Technologies for Communications (ATC) - Special Section on Green Communications, October 2013
- **Contextual Dissonance: Design Bias in Sensor-Based Experience Sampling Methods**
 Neal Lathia, Kiran K. Rachuri, Cecilia Mascolo, Peter J. Rentfrow
 In Proceedings of ACM International Joint Conference on Pervasive and Ubiquitous Computing (ACM UbiComp 2013), Zurich, Switzerland. September 2013
- **Open Source Smartphone Libraries for Computational Social Science**
 Neal Lathia, Kiran K. Rachuri, Cecilia Mascolo, George Roussos
 In Proceedings of ACM Workshop on Mobile Systems for Computational Social Science (ACM MCSS 2013), co-located with ACM UbiComp 2013, Zurich, Switzerland. September 2013
- **New wine in old skins: the case for distributed operating systems in the data center**
 Malte Schwarzkopf, Matthew P. Grosvenor, Steven Hand
 Proceedings of the 4th Asia-Pacific Workshop on Systems (APSYS 2013). Singapore, July 2013.
 [PDF]
- **Smartphones for Large-scale Behaviour Change Interventions**
 Neal Lathia, Veljko Pejovic, Kiran K. Rachuri, Cecilia Mascolo, Mirco Musolesi, Peter J. Rentfrow
 In IEEE Pervasive Computing. Special Issue on Understanding and Changing Behavior. To Appear.
- **Exploiting Foursquare and Cellular Data to Infer User Activity in Urban Environments**
 Anastasios Noulas, Cecilia Mascolo and Enrique Frias-Martinez
 In Proceedings of 14th International Conference on Mobile Data Management (MDM 2013). Milan, Italy. June 2013
 [PDF]
- **Graph Metrics for Temporal Networks**
 Vincenzo Nicosia, John Tang, Cecilia Mascolo, Mirco Musolesi, Giovanni Russo and Vito Latora
 Book Chapter in Temporal Networks. Petter Home and Jari Saramaki (Editors). Springer. 2013
- **Declarative, Temporal, and Practical Programming with Capabilities**
 William R. Harris, Somesh Jha, Thomas Reps, Jonathan Anderson, and Robert N. M. Watson
 In Proceedings of IEEE Symposium on Security and Privacy ("Oakland"), May, 2013.
- **Applications of Temporal Graph Metrics to Real-World Networks**
 John Tang, Ilias Leontiadis, Salvatore Scellato, Vincenzo Nicosia, Cecilia Mascolo, Mirco Musolesi and Vito Latora
 Book Chapter in Temporal Networks. Petter Holme and Jari Saramaki (Editors). Springer. 2013
- **Omega: flexible, scalable schedulers for large compute clusters**
 Malte Schwarzkopf, Andy Konwinski, Michael Abd-el-Malek, John Wilkes
 Proceedings of the 8th European Conference on Computer Systems (EuroSys 2013). Prague, Czech Republic, April 2013.
 [PDF] [Won the Best Student Paper Award]
- **Towards a theory of application compartmentalisation**
 Robert N. M. Watson, Steven J. Murdoch, Khilan Gudka, Jonathan Anderson, Peter G. Neumann, and Ben Laurie.
 In Proceedings of Security Protocols Workshop, March, 2013.
- **METIS: Exploring mobile phone sensing offloading for efficiently supporting social sensing applications**
 Kiran K. Rachuri, Christos Efstratiou, Ilias Leontiadis, Cecilia Mascolo, Peter J. Rentfrow
 Proceedings of the 11th IEEE International Conference on Pervasive Computing and Communications (Percom 2013). San Diego, CA, USA. March 2013 [Won the Mark Weiser Best Paper Award]
- **A decade of OS access-control extensibility**
 Robert N.M. Watson

Communications of the ACM 56(2), February 2013. [CACM]

- **A decade of OS access-control extensibility** (extended, open-access version)

Robert N.M. Watson

[Queue]

- **Evaluating Temporal Robustness of Mobile Networks**

Salvatore Scellato, Ilias Leontiadis, Cecilia Mascolo, Pritwish Basu, Murtaza Zafer

In IEEE Transactions on Mobile Computing. Vol 12(1). January 2013

[PDF]

2012 Publications

- **Mining User Mobility Features for Next Place Prediction in Location-based Services**

Anastasios Noulas, Salvatore Scellato, Neal Lathia and Cecilia Mascolo

In Proceedings of IEEE International Conference on Data Mining (ICDM 2012). Short Paper. Brussels, Belgium. December 2012

[PDF]

- **Evolution of a Location-based Online Social Network: Analysis and Models**

Miltiadis Allamanis, Salvatore Scellato and Cecilia Mascolo

In Proceedings of ACM Internet Measurement Conference (IMC 2012). Boston, MA. November 2012.

[PDF]

- **Breaking for Commercials: Characterizing Mobile Advertising**

Narseo Vallina-Rodriguez, Alessandro Finamore, Jay Shah, Yan Grunenberger, Hamed Haddadi, Konstantina Papagiannaki and Jon Crowcroft

In Proceedings of ACM Internet Measurement Conference (IMC 2012), Boston, MA, November 2012

[PDF]

- **When David can help Goliath: the case for cellular augmentation of wired networks.**

Narseo Vallina-Rodriguez, Vijay Erramilli, Yan Grunenberger, Laszlo Gyarmati, Nikolaos Laoutaris, Rade Stanojevic, Konstantina Papagiannaki

In Proceedings of ACM HotNets'12, Seattle, WA, October 2012

[PDF]

- **Exploring compartmentalisation hypotheses with SOAAP**

Khilian Gudka, Robert N. M. Watson, Steven Hand, Ben Laurie, and Anil Madhavapeddy

In Proceedings of Adaptive Host and Network Security (AHANS 2012), September, 2012.

[PDF]

- **A Random Walk Around the City: New Venue Recommendation in Location-Based Social Networks**

Anastasios Noulas, Salvatore Scellato, Neal Lathia and Cecilia Mascolo

In Proceedings of ASE/IEEE International Conference on Social Computing (SocialCom). Amsterdam, The Netherlands. September 2012

[PDF]

- **Talking Places: Modelling and Analysing Linguistic Content in Foursquare**

Sandro Bauer, Anastasios Noulas, Diarmuid Ó Séaghdha, Stephen Clark and Cecilia Mascolo

In Proceedings of ASE/IEEE International Conference on Social Computing (SocialCom). Amsterdam, The Netherlands. September 2012

[PDF]

- **Los Twindignados: The Rise of the Indignados Movement on Twitter**

Narseo Vallina-Rodriguez, Salvatore Scellato, Hamed Haddadi, Carl Forsell, Jon Crowcroft and Cecilia Mascolo

In ASE/IEEE International Conference on Social Computing (SocialCom'12), Amsterdam, September, 2012

[PDF]

- **Far from the eyes, close on the Web: impact of geographic distance on online social interactions**

Andreas Kaltenbrunner, Salvatore Scellato, Yana Volkovich, David Laniado, Dave Currie, Erik J. Jutemar, Cecilia Mascolo

In ACM SIGCOMM Workshop on Online Social Networks (WOSN 2012). Helsinki, Finland. August 2012

[PDF]

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