Professor Simon Dobson BSc MA DPhil FRSE CEng FBCS

t: +44 1334 461626
m: +44 7540 298684
e: simon.dobson@st-andrews.ac.uk
w: https://simondobson.org

github: https://github.com/simoninireland/
scholar: https://scholar.google.com/citations?user=AbJrH_EAAAAJ
orcid: https://orcid.org/0000-0001-9633-2103
mastodon: https://mastodon.scot/@simoninireland

Vision

To build a world-leading research programme in complex, adaptive, and sensor-driven systems. To see the results of this programme inform the student experience and the advancement of science.

Achievements in current post

Since moving to St Andrews I have established a research programme covering the theory and practice of complex, sensor-driven, and adaptive systems, collaborating with colleagues across the University and funded from local, national and EU sources and working within the School's Complex and Adaptive Systems group (CAS), of which I was a founder member.

I was elected to Scotland's national academy as a Fellow of the Royal Society of Edinburgh in 2020, and to the Scottish Science Advisory Council giving science policy advice to the Scottish government in 2025.

My research seeks to understand how complex adaptive systems behave. Specifically, wehave developed approaches to understanding the limits of sensing under realistic conditions: how can one continue to make decisions, and with what degree of confidence, in the face of degradation, poor placement, and partial failure? This has involved making several; significant advances in machine-learning-driven data analytics; more recently we have been exploring approaches based on network science, and specifically how the topology of interactions, and of data sets, can be leveraged to improve our understanding of the processes involved. We develop and maintain several open-source libraries that power our work, most notably for epidemic (and other) process simulation.

I was Head of School for Computer Science 2017 – 2021. I led the School by example through a period of growth in a challenging national and international environment, during which we maintained (and improved) the quality and delivery of our teaching and research as the scope and volume of our activities increased. The COVID-19 pandemic posed an immense challenge, and I managed the migration of all the School's activities online for dual delivery to students local and remote to St Andrews – a task made harder by our determination to retain the small-group, in-person, approach to teaching and learning that constitutes the main "draw" to the University. I engaged at institutional level, taking leadership roles on various committees and activities, seeking to help ensure that St Andrews continues to prosper in the right directions

From 2010 – 2017 I served as Director of Research, leading the School's participation in the UK Research Evaluation Framework (REF2014) process. I took a leadership role in the Scottish Informatics and Computer Science Alliance (SICSA) in terms of programme development and student experience, and have served on several national committees and international journal boards.

Current main research interests

Design, analysis and programming of sensor- and data-driven adaptive systems. Interpretation of noisy data using techiques from algebraic topology and statistical machine learning. Complex networks and their application to biological and environmental modelling.

Background

Primary qualifications

DPhil Computer Science, *"An approach to scalable parallel programming"*, University of York UK 1993
BSc (hons) 1st class Computing Science, University of Newcastle upon Tyne UK 1989

Other qualifications

MA *in jure officii*, Trinity College Dublin IE 2003

Professional recognition

Fellow, Royal Society of Edinburgh 2020
Fellow, British Computer Society (Member since 1996) 2008
Chartered Engineer 1996
Member, London Mathematical Society 2017

Career

University of St Andrews UK (Professor of Computer Science) 2009 – date
University College Dublin IE (College lecturer) 2004 – 2009
Aurium Ltd IE (Founder and CEO of a research-led start-up company) 2001 – 2003
Trinity College Dublin IE (Research fellow; Lecturer) 1997 – 2001, 2003 – 2004
STFC Rutherford Appleton Laboratory UK (Research fellow; Scientific officer) 1992 – 1997

Prizes and awards

Runner-up best paper, Thirteenth IEEE International Conference on Self-Adaptive and Self-Organising Systems (SASO) 2019
Best paper, 3rd International Conference on Internet Technologies and Secured Transactions 2008
Led team shortlisted for an Irish Software Association Technical Innovation Award 2002
Best student paper (co-author), International Conference on Enterprise Information Systems 1998
Visiting scholar, US Air Force Research Laboratory, Rome NY 1998
Personal doctoral scholarship, Science and Engineering Research Council UK 1989 – 1992

Selected research funding

(All figures quoted as institutional value/total value where appropriate.)

Cloud epyc (Oracle for Research, 2023, £30K, principal investigator.) Exploring computational-science-as-a-service in a cloud environment.

Identifying community COVID-19 *cases and exploring differences with patients diagnosed in healthcare settings* (Scottish Chief Scientist's Office, 2020, £25K, co-investigator, led by the School of Medicine.) Developing an app to collect and analyse reported symptoms for suspected covid-19 infection.

Complex network approaches to antibiotic resistance (Microsoft, 2017, $20K, principal investigator, jointly with the Schools of Biology and Chemistry.) In-kind grant of cloud computing time to support simulations of the gene exchanges underlying the emergence of resistance in bacteria.

Science of Sensor Systems Software (S4) (EPSRC Programme Grant, 2016 – 2021, £920K/£4.4M, institutional principal investigator.) Formal methods applied to the development, adaptation, and verification of sensor system (`http://www.dcs.glasgow.ac.uk/research/s4`).

Sensing environmental risk (CENSIS, 2015 – 2016, £26K, principal investigator.) Proof-of-concept application of environmental sensor interpretation at a major chemical facility, in collaboration with a software SME.

Exploring transgenic mosquito dynamics using complex networks (Microsoft, 2015 – 2016, $20K, principal investigator, joint with the School of Biology.) In-kind grant of cloud computing time to support extensive simulations of mosquito spreading.

SAPERE (EU Framework 7, 2010 – 2013, €450K/€2.5M, institutional principal investigator.) Long-lived adaptive infrastructures (`http://www.sapere-project.eu`).

TEPAWSN (Xi'an Jiao Tong Liverpool University Research Development Fund, 2010 – 2012, ¥52K, international collaborator.) Formal methods applied to sensor networks.

Lero, the Irish Software Engineering Research Centre (Science Foundation Ireland, 2005 – 2010, €1M/€11M, co-investigator). Semantics, modelling and programming of autonomic systems (`http://www.lero.ie`).

Clarity (Science Foundation Ireland, 2008 – 2012, €6M/€16M, co-investigator). Middleware and programming models for power-aware wireless sensor networks (`http://www.clarity-centre.org`).

Networked embedded systems in the built environment (NEMBES) (Irish Higher Education Authority Programme for Research in 3rd-Level Institutions, 2007 – 2011, €450k/€14.5M, institutional principal investigator). Autonomic programming and management of wireless sensors embedded into physical substrates.

User-centred evaluation of pervasive systems (Enterprise Ireland, 2005 – 2008, €80K/€350K, institutional principal investigator). Design and evaluation methods for pervasive systems using semi-immersive virtual reality.

On-line Dublin Computer Science Summer School (Science Foundation Ireland, 2007 – 2010, €600K/€1.2M, co-investigator). A summer internship programme giving an international cohort of undergraduates the opportunity to work in a research environment (`http://www.odcsss.ie`).

SenseTiles (Science Foundation Ireland, 2007 – 2009, €650K, co-investigator). A framework for easily-deployed wireless sensor networks using standard ceiling tiles.

Towards a semantics of pervasive computing (Enterprise Ireland, 2005 – 2008, €350K, principal investigator). Developed models for the behaviour of pervasive systems, leading to a better understanding of the effects of sensor uncertainty.

Career totals

Principal/institutional lead investigator on grants worth over £9M

Collaborator/co-investigator on grants totalling a further £30M

Commercial funding to found and lead a start-up company, raising €650K in venture funding and growing it to a value in excess of €1.8M

Selected professional activities

Programme, policy, and standards development

Scottish Science Advisory Council. Elected member, 2025 – 2028. SSAC is the highest-level science advisory body, providing independent strategy and policy advice to the Scottish Government. (`https://scottishscience.org.uk`)

UK Computing Research Committee. Elected member, 2011 – date; member of executive 2022 – date. UKCRC is an expert panel of the BCS aiming to promote the vitality, quality and impact of computing research in the UK.

W3C Provenance Working Group. Invited expert, 2011 – 2013. Developing a standard for recording the provenance of web objects, including scientific and sensor information.

European Research Consortium for Informatics and Mathematics. National director 2006 – 2009; vice-president, 2008 – 2009; chair of structure task group 2007 – 2009; member of strategy group, 2008 – 2009. ERCIM provides lobbying and project management for a group of 19 leading IT labs across Europe, with an annual turnover in excess of €25M. (`https://www.ercim.eu`)

EU Framework programmes. Invited expert and rapporteur for Situated and Autonomic Communications initiative 2003 – 2005; project reviewer, 2009 – date; proposal reviewer, 2004 – date. Invited participant in the "Beyond the horizons" and "InterLink" projects to help set future research directions, including co-ordination with EU/NSF joint activities.

IBEC/ICT Ireland committee on academic/industrial R&D. Member 2003 – 2009; co-author of two reports on fostering research 2005. Several of the recommendations in these reports have been acted upon by government, notably the provision of vouchers to companies to conduct applied collaborative research.

Fellowship, tenure, and promotion evaluation

Fellowship evaluation. Royal Society of Edinburgh sectional committee B (Informatics, Mathematics, and Statistics), 2021 – 2024.

Tenure evaluation. Universitá di Bologna, 2021; King's College London UK, 2016; Rutgers University NJ, 2012; Drexel University PA, 2019, 2015, 2009.

Professorial recruitment panels. University College Cork IE, 2018; Oxford University UK, 2017.

Research proposal and project reviewing

Nederlandse Organisatie voor Wetenschappelijk Onderzoek NL. Talent programme reviewer, 2023.

National Sciences and Engineering Research Council of Canada CA. Discovery grant reviewer, 2023.

Medical Research Council UK. Reviewer for "Better methods, Better research" panel, 2022.

UK Research and Innovation Strategic Priorities Fund UK. Reviewer for "AI for Science and Government" at the Alan Turing Institute, 2021.

Engineering and Physical Sciences Research Council UK. Member of EPSRC College, 2008 – date.

Natural Environment Research Council UK. Proposal reviewer, 2009 – 2019.

Royal Society UK. University Research Fellowship reviewer, 2013 – 2019.

Royal Academy of Engineering Chair in Emerging Technologies scheme UK. Proposal reviewer, 2017.

European Union Framework programmes EU. Proposal reviewer, 2004 – date; project reviewer, 2011 – 2014.

Htvatska zaklada za znanost HR Proposal reviewer 2013 – 2015.

Fonds zur Förderung der wissenschaftlichen Forschung AT. Proposal reviewer 2012 – 2015.

Ministero dell'Istruzione, dell'Università e della Ricerca IT. Proposal reviewer 2012 – 2016.

Enterprise Ireland IE. Proposal reviewer, 2012 – 2017.

Dutch National Science Foundation NL. Proposal reviewer, 2011 – 2012.

Swiss National Science Foundation CH. Proposal reviewer, 2010.

Fundação para a Ciéncia e a Tecnologia PT. Proposal reviewer, 2009.

Editorial activities

Nature Communications. Reviewer, 2024 – date.

Physical Research Review. Reviewer, 2020 – date.

Physical Review Letters. Reviewer, 2020 – date.

Physical Review E. Reviewer, 2016 – date.

Nature. Reviewer, 2015 – date.

ACM Transactions on Autonomous and Adaptive Systems. Reviewer, 2007 – 2011; associate editor, 2011 – 2017.

EAI Endorsed Transactions on Self-Adaptive Systems. Associate editor, 2014 – 2016.

Journal of Network and Systems Management. Guest editor 2007; member of editorial board 2007 – 2017.

International Journal of Autonomous and Adaptive Communications Systems. Member of editorial board, 2007 – 2012.

International Journal of Ambient Computing and Intelligence. Associate editor, 2008 – 2012.

Springer Verlag Birkhäuser series on Autonomic Computing. Member of editorial board, 2008 – 2014.

Computer Networks. Guest editor, 2008.

International Journal of Internet Protocol Technology. Guest editor, 2006.

IEEE Transactions on Systems, Man and Cybernetics – A. Reviewer, 2008 – 2010.

Pervasive and Mobile Computing Journal. Reviewer, 2005 – date.

SOFTWARE: Practice and experience. Reviewer, 2006 – 2015.

IEEE Communications. Reviewer, 2004 – 2012.

Computer Communications Reviewer, 2004 – 2007.

Keynotes, panels, and invited activities

St Andrews Summit. 2025. Panel discussion on "The geopolitics of semiconductor supply chains".

AI and sustainability. 2024. Panel discussion organised by the St Andrews Centre for Critical Sustainabilities.

Conference on Design and Architectures for Signal and Image Processing (DASIP), 2018. Porto, PT. Invited keynote on moving from sensors to sensor systems software.

12th IEEE International Conference on Self-Adaptive and Self-organising systems (SASO), 2018. Trento, IT. Invited panelist on the future of self-organising and autonomic systems.

Panel discussion on "The two cultures", after CP Snow, 2016. Science/Arts event organised by the Young Academy of Scotland to discuss how the ideas have evolved and influenced modern conversations, to a public audience.

SICSA panel on Getting value from your data, 2014. Invited panelist talking about complex processes on complex networks.

Swiss Doctoral Winter School, 2012. Ovronaz, CH. Invited lecture series (8 contact hours) on context-aware systems for a week-long programme in service-oriented computing.

6th International Workshop on Managing Ubiquitous Communications and Services, 2009. Invited keynote on adaptive network management.

Dagstuhl seminar on the future internet, 2009. Invited participant.

5th IEEE International Conference on Autonomic Computing, 2008. Invited panelist on managing next-generation networks.

European Telecommunications Standards Institute 1st "Infinity Initiative" workshop, 2007. Invited presentation and panelist on the internet of things.

2nd International Workshop on Self-Organising Systems, 2007. Invited panelist.

Dagstuhl seminar on resilient and survivable networks, infrastructures and services, 2007. Invited participant.

IFIP Autonomic Networking, 2006. Paris, FR. Invited keynote on programming in the presence of uncertainty.

2nd IFIP International Workshop on Autonomic Communications, 2005. Invited panelist on grand challenges in autonomic systems

Conference and workshop organisation

IEEE International Conference on Autonomic Computing and Self-Organizing Systems (ACSOS). Steering committee, 2019 – date.

International Workshop on Engineering Collective Adaptive Systems (eCAS). Programme co-chair, 2018.

IEEE International Conference on Cloud and Autonomic Computing. Programme committee, 2013 – 2019; steering committee, 2014 – 2019.

IEEE International Conference on Autonomic Computing. Local chair 2006; workshops chair 2007; programme co-chair 2008; general co-chair 2009; member of steering committee 2007 – 2010.

IFIP/IEEE International Symposium on Integrated Network Management. Panels co-chair, 2011.

International Conference on High-Performance Computing. Programme vice-chair, 2009.

IFIP Autonomic Networking. Programme co-chair, 2006.

IEEE PERVASIVE. Publicity co-chair and local committee, 2006.

(In addition I serve on 2 – 3 international conference and workshop programme committees per year.)

Selected recent university activities

Institutional leadership

Engineering@St Andrews 2020 – date. Member of the steering committee, 2020 – date; senior theme lead for "Systems and processes", 2022 – date. E@ST is an institute to bring together all the engineering work happening across the University.

Head of School for Computer Science. 2017 – 2021. Leading the School through a period of growth in student and staff numbers, through an on-going broadening of our core and collaborative research activities, and through the REF2021 exercise. When the COVID-19 pandemic hit, dealing with lockdown and transferring all the School's activities online.

Research Excellence Board. 2018 – 2021. The board oversees the quality and direction of the university's research across faculties, particularly in relation to REF at appropriate points in the cycle.

Information Strategy Board. 2018 – 2021. The committee directs the institution's core IT, computation, and data strategies.

St Andrews Institute for Data-Intensive Research 2015 – 2019. Led the development of an inter-disciplinary institute to focus and drive the university's activities in data science and digital humanities (`http://www.idir.st-andrews.ac.uk`).

Director of Research for Computer Science. 2010 – 2017. Led School's submission to REF2014. Established structures for research assessment, proposal development and review.

Programme development

MSc in Data Science. 2015 – 2017. Helping lead the development of a new joint MSc programme between the Schools of Computer Science, and Mathematics and Statistics.

MSc programme review. 2009 – 2011. Review of St Andrews' MSc programmes in computer science, recommending migration to a "portfolio" model of modules. Member of panel implementing these recommendations.

MSc Ubiquitous and Sensor Systems. Programme director 2007 – 2009. Re-developed the curriculum and style to focus on the techniques needed for developing applications in sensor-rich environments.

MSc Advanced Software Engineering. Programme director 2004 – 2007. Grew the programme to over 30 students per year, conducting extensive liaison with local industry to guide curriculum evolution.

Current PhD/EngD supervision

1. Berné Nortier, Higher-order network and analytics

Graduated PhD/EngD students

1. Dr Diego Arenas. Data analytics applied to power logistics. 2022.
2. Dr Peter Mann (co-supervisor). Generating functions applied to topics in clustered networks. 2021.
3. Dr Michael Pitcher (co-supervisor). *In silico* modelling of tuberculosis pathology. 2020.
4. Dr Chris Schneider (co-supervisor). Unsupervised machine learning for fault identification in virtualised environments. 2015.
5. Dr Lei Fang. Statistical learning for managing error behaviour of sensor networks. 2014.
6. Dr Graeme Stevenson. An approach to situation recognition based on learning semantic models. 2014.
7. Dr Saray Shai. Complex coupled networks: structure, adaptation, and processes. 2014.
8. Dr Graham Williamson (co-supervisor). Epidemic data dissemination in wireless sensor networks. 2012.
9. Dr Hui Zhang. Coverage problems in sparse and dense sensor networks. 2011.
10. Dr Susan McKeever. Situation recognition using enhanced Dempster-Shafer evidence theory. 2011.
11. Dr Emerson Louriero (co-supervisor). Optimal autonomic management of dynamic CPU shares. 2010.
12. Dr Michael Collins. Security protocols applied to wireless sensor networks. 2010.
13. Dr Stephen Knox. Situation recognition using case-based reasoning. 2010.
14. Dr Adrian Clear. Interactive specification of situations. 2009.
15. Dr Juan Ye. Semantics of pervasive computing systems. 2008.
16. Dr MA Razzaque. Cross-layer architectures for autonomic systems. 2008.
17. Dr Tim Walsh (co-supervisor). Mobile agent architectures. 2007.
18. Dr Sotirios Terzis (co-supervisor). Advanced trader architectures. 2005.

Recent modules taught

Complex systems and simulation (MSc). A born-digital module on complex systems, modelling, analysis, and simulation. Delivered and assessed purely online.

Computer security (Undergraduate level 4). Security from the perspective of the practitioner, focusing on modern tools and techniques applied within a framework of modelling the current and emerging threats

Foundations of Computing (Undergraduate level 2). Algorithms, data structures and practical computational complexity. Taught as a "flipped" module with video content preceding interactive classes.

The Internet and the Web (Undergraduate level 2). Internet architecture and protocols, with emphasis on layering and service abstractions.

Sustainable development (MSc). A lecture and discussion on applications os sensor technology to sustainable development, including material on environmental sensing and smart grids.

Component technologies (Undergraduate level 3). Modern approaches to middleware, component composition and orchestration.

"Great ideas" (Undergraduate level 1). A liberal-arts style overview of various fields, for which I contributed a lecture on the history and evolution of the internet.

Computers in everyday life (Undergraduate level 1). Two lectures on sensor systems; more recently, two lectures on complex systems.

Contextual systems (MSc/PhD). Theory and practice of designing and implementing context-aware systems.

Principles of programming languages (Undergraduate level 3). Principles underlying programming languages, informed by developing an interpreter for a simple language.

Autonomic systems (MSc/PhD). Techniques for adaptive middleware and autonomic systems.

Sensor systems (MSc/PhD). Hardware and software techniques for dealing with sensors, informed by a medium-scale project.

(In addition I have developed and delivered a number of other modules including software engineering, semantics, data structures and communications.)

Examination and administration

School benchmarking. School of Computer Science, NUI Galway IE. 2021.

Institutional teaching review. Department of Computer Science, University of York, 2015.

CPHC/BCS Distinguished Dissertations Panel. Member, 2010 – 2016; chairman, 2013 – 2015.

Programme external examination. BA(Mod) programme, Trinity College Dublin IE, 2019 – 2022. BSc (part-time) programme, University of Ulster UK, 2019 – 2022. MSc programmes, Lancaster University UK, 2013 – 2017. BSc programme, UCD Dublin IE, 2014 – 2017.

Programme certification. PGCert in Online Digital Communications, University of Ulster UK, 2011.

External PhD examination. University of Newcastle upon Tyne UK, 2023. UCD Dublin IE, 2020. University of Ulster UK, 2020. Università di Bologna IT, 2015. University of Aberdeen UK, 2014. National University of Singapore SG, 2013. Trinity College Dublin IE, 2013, 2019. University of Limerick IE, 2013. University of Southampton UK, 2012. Imperial College UK, 2011, 2015, 2020. TU Delft NL, 2011, 2022. University of Liverpool UK, 2010. University of Leicester UK, 2009. University of Strathclyde UK, 2009 – 2011. University of Lancaster UK, 2008. Institut TELECOM Sud Paris FR, 2008. University of York UK, 2006, 2013. Institut d'Informatique et Mathématiques Appliquées de Grenoble, Université Joseph Fourier FR (conducted in French), 2005. University of Sheffield UK, 1999.

Full list of publications

Submitted and under review

Berné Nortier and Simon Dobson. *An Approach to Analysing Sensor Placement and Its Effects.* Submitted to Proceedings of the Royal Society A.

Peter Mann and Simon Dobson. *Alternative Expression of Message Passing on Networks.* Submitted to Physical Review E.

Alison Johnston, Vincent Lostanien, Tiago Marques, Sophie Palmer, Bronte Stones, Simon Dobson, Steve Buckland, Holger Klinck, Olivier Metcalf, and Martin Cox. *Distance Sampling with Acoustic Classification.* Submitted to Methods in Ecology and Evolution.

Books

Simon Dobson. *Epidemic Modelling – Some Notes, Maths, and Code.* Independent Publishing Network. ISBN 978-183853-565-0. 2020.

Journal articles

Tianyuan Zheng, John Mitchell, and Simon Dobson. *Revisiting the Application of Machine Learning Approaches in Predicting Aqueous Solubility.* ACS Omega **9**. 2024.

Martin Schiemer, Lei Fang, Simon Dobson, and Juan Ye. *Online Continual Learning for Human Activity Recognition.* Pervasive and Mobile Computing **93**. 2023.

Peter Mann and Simon Dobson. *Belief Propagation on Networks with Cliques and Chordless Cycles.* Physical Review E **107**. 2023.

Simon Dobson. *epyc: Computational Experiment Management in Python.* Journal of Open-Source Software **7**. 2022.

Peter Mann, V. Anne Smith, John Mitchell, and Simon Dobson. *N-Strain Epidemic Model Using Bond Percolation.* Physical Review E **106**. 2022.

Peter Mann, V. Anne Smith, John Mitchell, and Simon Dobson. *Degree Correlations in Graphs with Clique Clustering.* Physical Review E **105**. 2022.

Peter Mann, V. Anne Smith, John Mitchell, and Simon Dobson. *Symbiotic and Antagonistic Disease Dynamics on Clustered Networks Using Bond Percolation.* Physical Review E **104**. 2021.

Peter Mann, V. Anne Smith, John Mitchell, and Simon Dobson. *Percolation in Random Graphs with Higher-Order Clustering.* Physical Review E **103**. 2021.

Peter Mann, V. Anne Smith, John Mitchell, Christopher Jefferson, and Simon Dobson. *Exact Formula for Bond Percolation on Cliques.* Physical Review E **104**. 2021.

Andrea Rosales Sanabria, Franco Zambonelli, Simon Dobson, and Juan Ye. *ContrasGAN: Unsupervised Domain Adaptation in Human Activity Recognition via Adversarial and Contrastive Learning.* Pervasive and Mobile Computing **78**. 2021.

Peter Mann, V. Anne Smith, John Mitchell, and Simon Dobson. *Two-Pathogen Model with Competition on Clustered Networks.* Physical Review E **103**. 2021.

Peter Mann, V. Anne Smith, John Mitchell, and Simon Dobson. *Co-Operative Co-Infection Dynamics on Clustered Networks.* Physical Review E **103**. 2021.

Peter Mann, V. Anne Smith, John Mitchell, and Simon Dobson. *Random Graphs with Arbitrary Clustering and Their Applications.* Physical Review E **103**. 2021.

Juan Ye and Simon Dobson. *Xlearn: Learning Activity Labels across Heterogeneous Datasets.* IEEE Transactions on Intelligent Systems and Technology **11**, pp.1–28. 2020.

Michael Pitcher, Ruth Bowness, Simon Dobson, Raluca Eftimie, and Stephen Gillespie. *Modelling the Effects of Environmental Heterogeneity within the Lung on the Tuberculosis Lifecycle.* Journal of Theoretical Biology **506**. 2020.

Michael Pitcher, Simon Dobson, Tom Kelsey, Mark Chaplain, Derek Sloan, Stephen Gillespie, and Ruth Bowness. *How Mechanistic in Silico Modelling Can Improve Our Understanding of TB Disease and Treatment.* International Journal of Tuberculosis and Lung Disease **24**. 2020.

Antonio Bucchiarone, Mirko D'Angelo, Danilo Pianini, Giacomo Cabri, Marina De Sanctis, Mirko Viroli, Roberto Casadei, and Simon Dobson. *On the Social Implications of Collective Adaptive Systems.* IEEE Technology and Society Magazine **39**, pp.36–46. 2020.

Lei Fang, Juan Ye, and Simon Dobson. *Discovery and Recognition of Emerging Human Activities Using a Hierarchical Mixture of Directional Statistical Models.* IEEE Transactions on Knowledge and Data Engineering **32**, pp.1304–1316. 2020.

Andrea Rosales Sanabria, Thomas Kelsey, Simon Dobson, and Juan Ye. *Representation Learning for Minority and Subtle Activities in a Smart Home Environment.* Journal of Ambient Intelligence and Smart Environments **11**, pp.495–513. 2019.

Juan Ye, Simon Dobson, and Franco Zambonelli. *Lifelong Learning in Sensor-Based Human Activity Recognition.* IEEE Pervasive Computing **18**. 2019.

Simon Dobson, David Hutchison, Andreas Mauthe, Alberto Schaefer-Filho, Paul Smith, and James PG Sterbenz. *Self-Organisation and Resilience for Networked Systems: Design Principles and Open Research Issues.* Proceedings of the IEEE **107**, pp.819–834. 2019.

Michael Pitcher, Ruth Bowness, Simon Dobson, and Stephen Gillespie. *A Spatially Heterogeneous Network-Based Metapopulation Model Applied to the Simulation of a Pulmonary Tuberculosis Infection.* Applied Network Science **3**. 2018.

Simon Dobson, Matteo Golfarelli, Simone Graziani, and Stefano Rizzi. *A Reference Architecture and Model for Sensor Data Warehousing.* IEEE Sensors Journal **18**. 2018.

Muffy Calder, Simon Dobson, Michael Fisher, and Julie McCann. *Making Sense of the World: Framing Models for Trustworthy Sensor-Driven Systems.* Computers **7**. 2018. Special issue on the 'The Emergence of the internet of things: connecting anything, anywhere?'.

Simon Dobson, Mirko Viroli, José Luis Fernandez-Marquez, Franco Zambonelli, Graeme Stevenson, Giovanna di Marzo Serugendo, Sara Montagna, Danilo Pianini, Juan Ye, Gabriella Castelli, and Alberto Rosi. *Spatial Awareness in Pervasive Ecosystems.* The Knowledge Engineering Review **31**, pp.343–366. 2016.

Juan Ye, Graeme Stevenson, and Simon Dobson. *Detecting Abnormal Events on Binary Sensors in Smart Home Environments.* Pervasive and Mobile Computing **33**, pp.32–49. 2016.

Juan Ye, Graeme Stevenson, and Simon Dobson. *KCAR: A Knowledge-Driven Approach for Concurrent Activity Recognition.* Pervasive and Mobile Computing **19**, pp.47–70. May 2015.

Chris Schneider, Adam Barker, and Simon Dobson. *Evaluating Unsupervised Fault Detection in Self-Healing Systems Using Stochastic Primitives.* EAI Endorsed Transactions on Self-Adaptive Systems **15**. 2015.

Franco Zambonelli, Andrea Omicini, Bernhard Anzengruber, Gabriella Castelli, Francesco DeAngelis, Giovanna di Marzo Serugendo, Simon Dobson, José-Luis Fernandez Marquez, Alois Ferscha, Marco Mamei, Stefano Mariani, Ambra Molesini, Sara Montagna, Jussi Nieminen, Danilo Pianini, Alberto Rosi, Graeme Stevenson, Mirko Viroli, and Juan Ye. *Developing Pervasive Multiagent Systems with Nature-Inspired Co-Ordination.* Pervasive and Mobile Computing **17**, pp.236–252. 2015.

Juan Ye, Stamatia Dasiopoulou, Graeme Stevenson, Georgios Meditskos, Efstratios Kontopoulos, Ioannis Kompatsiaris, and Simon Dobson. *Semantic Web Technologies in Pervasive Computing: A Survey and Research Roadmap.* Pervasive and Mobile Computing **23**, pp.1–25. 2015.

Emanuele Strano, Saray Shai, Simon Dobson, and Marc Barthélemy. *Multiplex Networks in Metropolitan Areas: Generic Features and Local Effects.* Journal of the Royal Society Interface **12**. 2015.

Saray Shai, Dror Kenett, Yoed Kenett, Miriam Faust, Simon Dobson, and Shlomo Havlin. *Critical Tipping Point Distinguishing Two Types of Transitions in Modular Network Structures.* Physical Review E **92**. 2015.

Juan Ye, Graeme Stevenson, and Simon Dobson. *USMART: An Unsupervised Semantic Mining Activity Recognition Technique.* ACM Transactions on Intelligent Interaction Systems **4**. 2014.

Abu Raihan M. Kamal, Chris Bleakley, and Simon Dobson. *Failure Detection in Wireless Sensor Networks: A Sequence Based Dynamic Approach.* ACM Transactions on Sensor Networks **10**. 2014.

Chris Schneider, Adam Barker, and Simon Dobson. *A Survey of Self-Healing Systems Frameworks.* SOFTWARE: Practice and Experience. 2014.

Savas Konur, Michael Fisher, Simon Dobson, and Stephen Knox. *Formal Verification of a Pervasive Messaging System.* Formal Aspects of Computing **26**, pp.677–694. 2014.

M.A. Razzaque and Simon Dobson. *Energy Efficient Sensing in Wireless Sensor Networks Using Compressed Sensing.* Sensors **14**, pp.2822–2859. 2014.

Abu Raihan M. Kamal, Chris Bleakley, and Simon Dobson. *Packet-Level Attestation (PLA): a Framework for in-Network Sensor-Data Reliability.* ACM Transactions on Sensor Networks **9**. 2013.

Saray Shai and Simon Dobson. *Coupled Adaptive Complex Networks.* Physical Review E **87**. 2013.

M.A. Razzaque, Chris Bleakley, and Simon Dobson. *Compression in Wireless Sensor Networks: A Survey and Comparative Evaluation.* ACM Transactions on Sensor Networks **10**. 2013.

MA Razzaque, Simon Dobson, and Kieran Delaney. *Augmented Materials: Spatially Embedded Sensor Networks.* International Journal of Networks and Distributed Systems **11**, pp.453–477. 2013.

Juan Ye, Simon Dobson, and Susan McKeever. *Situation Identification Techniques in Pervasive Computing: A Review.* Pervasive and Mobile Computing **8**, pp.36–66. 2012.

Saray Shai and Simon Dobson. *Effect of Resource Constraints on Intersimilar Coupled Networks.* Physical Review E **86**. 2012.

Mohamed Saad, Chris Bleakley, Tarig Ballal, and Simon Dobson. *High-Accuracy Reference-Free Ultrasonic Location Estimation.* IEEE Transactions on Instrumentation and Measurement **61**, pp.1561–1570. 2012.

Juan Ye, Graeme Stevenson, Simon Dobson, Michael O'Grady, and Gregory O'Hare. *Perceiving and Interpreting Smart Home Datasets with PI.* Journal of Ambient Intelligence and Humanized Computing **4**, pp.717–729. 2012.

Klaas Thoelen, Danny Hughes, Nelson Matthys, Lei Fang, Simon Dobson, Yizhou Qiang, Wei Bai, Ka Lok Man, Sheng-Uei Guan, Davy Preuveneers, Sam Michiels, Christophe Huygens, and Wouter Joosen. *A Reconfigurable Component Model with Semantic Type System for Dynamic WSN Applications.* Journal of Internet Services and Applications **3**, pp.277–290. 2012.

Alan Dearle and Simon Dobson. *Mission-Oriented Middleware for Sensor-Driven Scientific Systems.* Journal of Internet Services and Applications **3**, pp.133–139. 2012.

Emerson Loureiro, Paddy Nixon, and Simon Dobson. *Decentralized and Optimal Control of Shared Resource Pools.* ACM Transactions on Autonomous and Adaptive Systems **7**. 2012.

Mohamed Saad, Chris Bleakley, and Simon Dobson. *Robust High Accuracy Ultrasonic Range Measurement System.* IEEE Transactions on Instrumentation and Measurement **60**, pp.3334–3341. 2011.

Juan Ye, Graeme Stevenson, and Simon Dobson. *A Top-Level Ontology for Smart Environments.* Pervasive and Mobile Computing **7**, pp.359–378. 2011.

Franco Zambonelli, Gabrialla Castelli, Laura Ferrari, Marco Mamei, Alberto Rosi, Giovanna di Marzo Serugendo, Matteo Risoldi, Akla-Esso Tchao, Simon Dobson, Graeme Stevenson, Juan Ye, Elena Nardini, Andrea Omicini, Sara Montagna, Mirko Viroli, Alois Ferscha, Sascha Maschek, and Bernhard Wally. *Self-Aware Pervasive Service Ecosystems.* Procedia Computer Science **7**, pp.197–199. 2011.

Juan Ye and Simon Dobson. *Exploring Semantics in Activity Recognition Using Context Lattices.* Journal of Ambient Intelligence and Smart Environments **2**, pp.389–407. 2010.

Adrian K. Clear, Thomas Holland, Simon Dobson, Aaron Quigley, Ross Shannon, and Paddy Nixon. *Situvis: A Sensor Data Analysis and Abstraction Tool for Pervasive Computing Systems.* Pervasive and Mobile Computing **6**, pp.575–589. 2010.

Graeme Stevenson, Juan Ye, Simon Dobson, and Paddy Nixon. *LOC8: A Location Model and Extensible Framework for Programming with Location.* IEEE Pervasive Computing **9**, pp.28–37. 2010.

Simon Dobson, Roy Sterritt, Paddy Nixon, and Mike Hinchey. *Fulfilling the Vision of Autonomic Computing.* IEEE Computer **43**, pp.35–41. 2010.

Susan McKeever, Juan Ye, Lorcan Coyle, Chris Bleakley, and Simon Dobson. *Activity Recognition Using Temporal Evidence Theory.* Journal of Ambient Intelligence and Smart Environments **2**, pp.253–269. 2010.

Michael Collins, Simon Dobson, and Paddy Nixon. *Securing Wireless Sensor Networks: Introducing ASLAN – a Secure, Lightweight Architecture for WSNs.* International Journal on Advances in Networks and Services **2**, pp.679–685. May 2009.

Michael Collins, Simon Dobson, and Paddy Nixon. *A Lightweight Secure Architecture for Wireless Sensor Networks.* International Journal of Internet Technology and Secured Transactions **2**. 2009.

John Strassner, Sven van der Meer, Declan O'Sullivan, and Simon Dobson. *The Use of Context-Aware Policies and Ontologies to Facilitate Business-Aware Network Management.* Journal of Network and Systems Management **17**, pp.255–284. 2009.

Brendan Sheehan, Aaron Quigley, Benoit Gaudin, and Simon Dobson. *A Relation Based Measure of Semantic Similarity for Gene Ontology Annotations.* BMC Bioinformatics Journal **9**. 2008.

Stephen Knox, Adrian K. Clear, Ross Shannon, Lorcan Coyle, Simon Dobson, Aaron Quigley, and Paddy Nixon. *Scatterbox: Mobile Message Management.* Revue d'Intelligence Artificielle **22**, pp.549–568. 2008.

Juan Ye, Lorcan Coyle, Simon Dobson, and Paddy Nixon. *Representing and Manipulating Situation Hierarchies Using Situation Lattices.* Revue d'Intelligence Artificielle **22**, pp.647–667. 2008.

Simon Dobson. *An Adaptive Systems Perspective on Network Calculus, with Applications to Autonomic Control.* International Journal of Autonomous and Adaptive Communications Systems **1**, pp.332–341. 2008.

Juan Ye, Lorcan Coyle, Simon Dobson, and Paddy Nixon. *Ontology-Based Models in Pervasive Computing Systems.* The Knowledge Engineering Review **22**, pp.315–347. 2007.

Simon Dobson, Lorcan Coyle, and Paddy Nixon. *Hybridising Events and Knowledge as a Basis for Building Autonomic Systems.* IEEE TCAAS Letters. 2007.

M.A. Razzaque, Simon Dobson, and Paddy Nixon. *Cross-Layer Architectures for Autonomic Communications.* Journal of Network and Systems Management **15**, pp.13–27. 2007.

M.A. Razzaque, Simon Dobson, and Paddy Nixon. *Classification and Modeling of the Quality of Contextual Information.* IEEE TCAAS Letters. 2007.

Lorcan Coyle, Steve Neely, Graeme Stevenson, Mark Sullivan, Simon Dobson, and Paddy Nixon. *Sensor Fusion-Based Middleware for Smart Homes.* International Journal of Assistive Robotics and Mechatronics **8**, pp.53–60. 2007.

Steve Neely, Simon Dobson, and Paddy Nixon. *Adaptive Middleware for Autonomic Systems.* Annals of Telecommunications **61**, pp.1099–1118. 2006.

Simon Dobson, Spyros Denazis, Antonio Fernández, Dominique Gaïti, Erol Gelenbe, Fabio Massacci, Paddy Nixon, Fabrice Saffre, Nikita Schmidt, and Franco Zambonelli. *A Survey of Autonomic Communications.* ACM Transactions on Autonomous and Adaptive Systems **1**, pp.223–259. 2006.

Joëlle Coutaz, James Crowley, Simon Dobson, and David Garlan. *Context Is Key.* Communications of the ACM **48**, pp.49–53. 2005.

Don Goodeve, Simon Dobson, Jonathan Nash, John Davy, Peter Dew, Mourad Kara, and Chris Wadsworth. *Towards a Model for Shared Data Abstraction with Performance.* Journal of Parallel and Distributed Computing **49**, pp.156–167. 1998.

Simon Dobson and Victoria Burrill. *Lightweight Databases.* Computer Networks and ISDN Systems **27**, pp.1009–1015. 1995.

Major conferences

Lei Fang, Juan Ye, and Simon Dobson. *Distributed Self-Monitoring Sensor Networks via Markov Switching Dynamic Linear Models.* In *Proceedings of the Thirteenth IEEE International Conference on Self-Adaptive and Self-Organizing Systems (SASO'19).* Umeå, SE. 2019. Winner of runner-up best paper award.

Lei Fang, Juan Ye, and Simon Dobson. *Sensor-Based Human Activity Mining Using Dirichlet Process Mixtures of Directional Statistical Models.* In *Proceedings of the 6th IEEE International Conference on Data Science and Advanced Analytics (DSAA'19).* Washington, DC. 2019.

Danilo Pianini, Simon Dobson, and Mirki Viroli. *Self-Stabilising Target Counting in Wireless Sensor Networks Using Euler Integration.* In *Proceedings of the Eleventh IEEE International Conference on Self-Adaptive and Self-Organizing Systems (SASO'17)*, pp.11–20. Tucson, AZ. 2017.

Juan Ye, Lei Fang, and Simon Dobson. *Discovery and Recognition of Unknown Activities.* In *Proceedings of the 2016 ACM International Joint Conference on Pervasive and Ubiquitous Computing (Ubicomp'16): Adjunct*, pp.783–792. Heidelberg, de. 2016.

Lei Fang and Simon Dobson. *Towards Data-Centric Control of Sensor Networks through Bayesian Dynamic Linear Modelling.* In *Proceedings of the Ninth IEEE International Conference on Self-Adaptive and Self-Organizing Systems (SASO'15).* Boston, MA. 2015.

Juan Ye, Graeme Stevenson, and Simon Dobson. *Fault Detection for Binary Sensors in Smart Home Environments.* In *Proceedings of the IEEE International Conference on Pervasive Computing and Communications (Percom 2015).* St Louis, MO. 2015.

Lei Fang and Simon Dobson. *Data Collection with in-Network Fault Detection Based on Spatial Correlation.* In *Proceedings of the International Conference on Cloud and Autonomic Computing (CAC 2014).* London, UK. 2014.

José Luis Fernandez-Marquez, Giovanna di Marzo Serugendo, Graeme Stevenson, Juan Ye, Simon Dobson, and Franco Zambonelli. *Self-Management of Self-Organising Mobile Computing Applications: A Separation of Concerns Approach.* In *Proceedings of the 29th ACM Symposium on Applied Computing.* Gyeongju, KR. 2014.

Chris Schneider, Adam Barker, and Simon Dobson. *Autonomous Fault Detection in Self-Healing Systems Using Restricted Boltzmann Machines.* In *Proceedings of the 11th IEEE International Conference and Workshops on Engineering of Autonomic and Autonomous Systems (EASe 2014).* Laurel, MD. 2014.

Lei Fang and Simon Dobson. *Unifying Sensor Fault Detection with Energy Conservation.* In *Proceedings of the 7th International Workshop on Self-Organising Systems (IWSOS'13).* Palma de Mallorca, ES. May 2013.

Graeme Stevenson, Juan Ye, Simon Dobson, Danilo Pianini, Sara Montagna, and Mirko Viroli. *Combining Self-Organisation, Context-Awareness and Semantic Reasoning: The Case of Resource Discovery in Opportunistic Networks.* In *Proceedings of the 28th ACM Symposium on Applied Computing.* Coimbra, PT. 2013.

Lei Fang, Simon Dobson, and Danny Hughes. *An Error-Free Data Collection Method Exploiting Hierarchical Physical Models of Wireless Sensor Networks.* In *Proceedings of the Tenth ACM International Symposium on Performance Evaluation of Wireless Ad Hoc, Sensor, and Ubiquitous Networks.* ACM Press. Barcelona, ES. 2013.

Abu Raihan M. Kamal, Chris Bleakley, and Simon Dobson. *Congestion Mitigation Using in-Network Sensor Data Summarization.* In *Proceedings of the Ninth ACM International Symposium on Performance Evaluation of Wireless Ad Hoc, Sensor, and Ubiquitous Networks*, pp.93–100. Paphos, CY. 2012.

Emil Vassev, Mike Hinchey, Dharini Balasubramaniam, and Simon Dobson. *An ASSL Approach to Handling Uncertainty in Self-Adaptive Systems.* In *Proceedings of the 34th IEEE Software Engineering Workshop.* IEEE Press. Limerick, IE. 2011.

Emerson Loureiro, Paddy Nixon, and Simon Dobson. *Adaptive Management of Shared Resource Pools with Decentralized Optimization and Epidemics.* In *Proceedings of the 18th Euromicro Conference on Parallel, Distributed and Network-Based Processing*, pp.51–58. Marco Danelutto, Julien Borgeois, and Tom Gross, editors. IEEE Computer Society Press. Pisa, IT. 2010.

Adrian K. Clear, Ross Shannon, Thomas Holland, Aaron Quigley, Simon Dobson, and Paddy Nixon. *Situvis: A Visual Tool for Modeling a User's Behaviour Patterns in a Pervasive Environment.* In *Proceedings of the 7th International Conference on Pervasive Computing.* Nara, JP. May 2009.

Juan Ye, Lorcan Coyle, Simon Dobson, and Paddy Nixon. *Using Situation Lattices in Sensor Analysis.* In *Proceedings of the 7th IEEE International Conference on Pervasive Computing and Communications (Percom 2009)*, pp.1–11. Galveston, TX. 2009.

Susan McKeever, Juan Ye, Lorcan Coyle, and Simon Dobson. *Using Dempster-Shafer Theory of Evidence for Situation Inference.* In *Proceedings of the 4th European Conference on Smart Sensing and Context (EuroSSC).* Volume 5741 of LNCS. Springer-Verlag. Guildford, UK. 2009.

Hui Zhang, Paddy Nixon, and Simon Dobson. *Partial Coverage in Homological Sensor Networks.* In *Proceedings of the 5th IEEE International Conference on Wireless and Mobile Computing, Networking and Communications (WiMOB 2009)*, pp.42–47. IEEE Press. Marrakech, MA. 2009.

Emerson Loureiro, Paddy Nixon, and Simon Dobson. *Decentralized Utility Maximization for Adaptive Management of Shared Resource Pools.* In *Proceedings of the International Conference on Intelligent Networking and Collaborative Systems (INCoS'09).* IEEE Computer Society. Barcelona, ES. 2009.

Davide Cellai, Graham Williamson, Simon Dobson, and Paddy Nixon. *Self-Management of Routing on Human Proximity Networks.* In *Self-Organising Systems*, pp.1–12. Thrasyvoulos Spyropoulos and Karin Anna Hummel, editors. Volume 5918 of LNCS. Springer-Verlag. Zurich, CH. 2009.

Juan Ye and Simon Dobson. *Human-Behaviour Study with Situation Lattices.* In *Proceedings of the IEEE International Conference on Systems, Man and Cybernetics.* San Antonio, TX. 2009.

Simon Dobson, Lorcan Coyle, G.M.P. O'Hare, and Mike Hinchey. *From Physical Models to Well-Founded Control.* In *Proceedings of the 6th IEEE International Conference and Workshops on Engineering of Autonomic and Autonomous Systems.* IEEE Press. San Francisco, ca. 2009.

Susan McKeever, Juan Ye, Lorcan Coyle, and Simon Dobson. *A Context Quality Model to Support Transparent Reasoning with Uncertain Context.* In *Quality of Context.* K. Rothermal, D. Fritsch, W. Blochinger, and F. Dürr, editors. Volume 5786 of LNCS. Springer Verlag. Stuttgart, de. 2009.

Juan Ye, Susan McKeever, Lorcan Coyle, Steve Neely, and Simon Dobson. *Resolving Uncertainty in Context Integration and Abstraction.* In *Proceedings of the 5th International Conference on Pervasive Services*, pp.131–140. Domenico Cotroneo and Julie McCann, editors. ACM Press. Sorrento, IT. 2008.

Emerson Loureiro, Paddy Nixon, and Simon Dobson. *A Fine-Grained Model for Adaptive on-Demand Provisioning of CPU Shares in Data Centres.* In *Self-Organizing Systems*, pp.97–108. Karin Anna Hummel and James Sterbenz, editors. Volume 5343 of LNCS. Springer Verlag. Vienna, at. 2008.

Hui Zhang, Paddy Nixon, and Simon Dobson. *Multi-Criteria Adaptation Mechanisms in Homological Sensor Networks.* In *Proceedings of the 11th IEEE International Conference on Communciations Systems.* IEEE Press. Guangzhou, CN. 2008.

M.A. Razzaque, Simon Dobson, and Paddy Nixon. *Cross-Layer Self Routing: A Self-Managed Routing Approach for MANETs.* In *Proceedings of the 4th IEEE International Conference on Wireless and Mobile Computing, Networking and Communications.* IEEE Press. Avignon, FR. 2008.

Kieran Delaney, Simon Dobson, and John Barton. *Collaborative Smart Objects and Augmented Materials.* In *Proceedings of the Sensors and Systems Symposium at the NSTI Nanotechnology Conference (Nanotech 2007).* Santa Clara, ca. May 2007.

Simon Dobson and Paddy Nixon. *Whole-System Programming of Adaptive Ambient Intelligence.* In *Proceedings of HCI International 2007*, pp.73–81. Volume 4555 of LNCS. Springer-Verlag. Beijing, CN. 2007.

Adrian K. Clear, Simon Dobson, and Paddy Nixon. *An Approach to Dealing with Uncertainty in Context-Aware Pervasive Systems.* In *Proceedings of the UK/IE IEEE SMC Cybernetic Systems Conference 2007.* IEEE Press. Dublin, IE. 2007.

Juan Ye, Lorcan Coyle, Simon Dobson, and Paddy Nixon. *A Unified Semantics Space Model.* In *Location- and Context-Awareness*, pp.103–120. Volume 4718 of LNCS. 2007.

Simon Dobson. *Achieving an Acceptable Design Model for Autonomic Systems.* In *Proceedings of the 4th IEEE International Workshop on Engineering Autonomic and Autonomous Systems*, pp.196–202. IEEE Press. Tucson, AZ. 2007. Reprinted in AS Letters, October/November 2006.

Simon Dobson, Eoin Bailey, Stephen Knox, Ross Shannon, and Aaron Quigley. *A First Approach to the Closed-Form Specification and Analysis of an Autonomic Control System.* In *Proceedings of the 12th IEEE International Conference on Engineering Complex Computer Systems.* Auckland, NZ. 2007.

Graeme Stevenson, Paddy Nixon, and Simon Dobson. *Towards a Reliable Wide-Area Infrastructure for Context-Based Self-Management of Communications.* In *Autonomic Communication: 2nd International IFIP Workshop on Autonomic Communication*, pp.115–128. Ioannis Stavrakakis and Mikhail Smirnov, editors. Volume 3854 of LNCS. Springer-Verlag. 2006.

Eleanor O'Neill, David Lewis, Kris McGlinn, and Simon Dobson. *Rapid User-Centred Evaluation for Context-Aware Systems.* In *Interactive Systems: Design, Specification, and Verification.* Gavin Doherty and Ann Blandford, editors. Volume 4323 of LNCS. Springer-Verlag. Dublin, IE. 2006.

M.A. Razzaque, Simon Dobson, and Paddy Nixon. *A Cross-Layer Architecture for Autonomic Communications.* In *Autonomic Networking*, pp.25–35. Dominique Gaïti, Guy Pujolle, Ehab Al-Shaer, Ken Calvert, Simon Dobson, Guy Leduc, and Olli Martikainen, editors. Volume 4195 of LNCS. Springer-Verlag. Paris, FR. 2006.

M.A. Razzaque, Paddy Nixon, and Simon Dobson. *Demonstrating the Feasibility of an Autonomic Communications-Targeted Cross-Layer Architecture.* In *Proceedings of the 14th International Conference on Advanced Computing and Communications.* Mangalore, in. 2006.

Lorcan Coyle, Steve Neely, Gaëtan Rey, Graeme Stevenson, Mark Sullivan, Simon Dobson, and Paddy Nixon. *Sensor Fusion-Based Middleware for Assisted Living.* In *Smart Homes and beyond*, pp.281–288. Chris Nugent and Juan Carlos Augusto, editors. IOS Press. Belfast, UK. 2006.

Simon Dobson. *Leveraging the Subtleties of Location.* In *sOc-EUSAI'05: Proceedings of the 2005 Joint Conference on Smart Objects and Ambient Intelligence*, pp.175–179. Gérard Bailly, James Crowley, and Gilles Privat, editors. ACM Press. Grenoble, FR. 2005.

Simon Dobson, Kieran Delaney, Kafil Mahmood Razeeb, and Sergey Tsvetkov. *A Co-Designed Hardware/Software Architecture for Augmented Materials.* In *Proceedings of the 2nd International Workshop on Mobility Aware Technologies and Applications.* Thomas Magedanz, Ahmed Karmouch, Samuel Pierre, and Iakovos Venieris, editors. Volume 3744 of LNCS. Montréal, ca. 2005.

Seán Baker and Simon Dobson. *Comparing Service-Oriented and Distributed Object Architectures.* In *Proceedings of the International Symposium on Distributed Objects and Applications*, pp.631–645. Robert Meersman and Zahir Tari, editors. Volume 3760 of LNCS. Springer Verlag. 2005.

Simon Dobson. *Putting Meaning into the Network: Some Semantic Issues for the Design of Autonomic Communications Systems.* In *Proceedings of the 1st IFIP Workshop on Autonomic Communications*, pp.207–216. Mikhail Smirnov, editor. Volume 3457 of LNCS. Springer Verlag. Berlin, de. 2005.

Andy Nisbet and Simon Dobson. *A Systems Architecture for Sensor Networks Based on Hardware/Software Co-Design.* In *Proceedings of the 1st IFIP Workshop on Autonomic Communications.* Mikhail Smirnov, editor. Volume 3457 of LNCS. Springer Verlag. Berlin, de. 2005.

Simon Dobson and Paddy Nixon. *More Principled Design of Pervasive Computing Systems.* In *Human Computer Interaction and Interactive Systems.* Rémi Bastide and Jörg Roth, editors. Volume 3425 of LNCS. Springer Verlag. 2004.

Simon Dobson. *Applications Considered Harmful for Ambient Systems.* In *Proceedings of the ACM International Symposium on Information and Communications Technologies*, pp.171–176. ACM Press. Dublin, IE. 2003.

Tim Walsh, Paddy Nixon, and Simon Dobson. *As Strong as Possible Agent Mobility.* In *Infrastructure for Agents, Multi-Agent Systems, and Scalable Multi-Agent Systems*, pp.174–176. T. Wagner and O.F. Rana, editors. Volume 1887 of Lecture Notes in Artificial Intelligence. 2001.

Paddy Nixon, Vinny Wade, Sotirios Terzis, Marcus O'Connell, and Simon Dobson. *The Virtues Architecture: A Software Infrastructure for Business-to-Business E-Commerce.* In *Proceedings of the 2nd International Conference on Enterprise Information Systems.* Stafford, UK. 2000.

Simon Dobson and Brian Matthews. *Ionic Types.* In *ECOOP 2000 – Object-Oriented Programming*, pp.296–312. Elisa Bertoni, editor. Volume 1850 of LNCS. Springer-Verlag. 2000.

Sotirios Terzis, Paddy Nixon, Vinny Wade, Simon Dobson, and John Fuller. *The Future of Enterprise Groupware Applications.* In *Proceedings of the 1st International Conference on Enterprise Information Systems*, pp.525–532. Joaquim Filipe and José Cordeiro, editors. Setubal, PT. 1999. Winner of best student paper award.

Simon Dobson, Paddy Nixon, Vincent Wade, Sotirios Terzis, and John Fuller. *Vanilla: An Open Language Framework.* In *Generative and Component-Based Software Engineering.* Krzysztof Czarnecki and Ulrich Eisenecker, editors. Volume 1799 of LNCS. Springer-Verlag. 1999.

Simon Dobson and Don Goodeve. *Programming with Shared Data Abstractions.* In *Solving Irregularly Structured Problems in Parallel*, pp.93–102. Gianfranco Billardi, Afonso Ferreira, Reinhold Lüling, and José Rolim, editors. Volume 1253 of LNCS. Springer Verlag. 1997.

Simon Dobson and Chris Wadsworth. *Towards a Theory of Shared Data in Distributed Systems.* In *Software Engineering for Parallel and Distributed Systems*, pp.170–182. Innes Jelly, Ian Gorton, and Peter Croll, editors. Chapman and Hall. 1996.

Minor conferences and workshops

Simon Dobson. *Why You Should Care About Sheaves.* In *8th UK Systems Research Challenges Workshop.* Co Durham, UK. 2024.

Simon Dobson and Peter Mann. *Moving a Scientific Computing System to the Cloud.* In *7th UK System Research Challenges Workshop.* Co Durham, UK. 2023.

Peter Mann, V. Anne Smith, John Mitchell, and Simon Dobson. *A Population Model of Interacting SARS-CoV-2 Variants.* In *Proceedings of the BIFI International Conference on the Science of Covid-19: From Molecular Drug Design to Data-Driven Epidemiological Models.* Zaragoza, ES. 2022.

Simon Dobson. *Unit (and Other) Testing of Stochastic Code.* In *6th UK Systems Research Challenges Workshop.* Co Durham, UK. 2021.

Lei Fang, Xiaoli Liu, Xiang Su, Juan Ye, Simon Dobson, Pan Hui, and Sasu Tarkoma. *Bayesian Inference Federated Learning for Heart Rate Prediction.* In *Mobihealth 2020: Wireless Mobile Communications and Healthcare*, pp.116–130. Volume 362 of Lecture Notes of the Institute for Computer Sciences, Social Informatics and Telecommunications Engineering. Springer. 2021.

Simon Dobson. *Towards a Science of Sensor Systems Software.* In *5th UK Systems Research Challenges Workshop.* Co Durham, UK. 2019.

Lennert Voogt, Lisa Dow, and Simon Dobson. *Open Badges: A Best-Practice Framework.* In *Proceedings of the SAI Computing Conference.* London, UK. 2016.

Simon Dobson, Saray Shai, Emanuele Strano, and Marc Barthélemy. *Multiplex Cities: Interacting Transport Networks in Metropolitan Areas.* 2015. Presented at the SICSA Workshop on Modelling and Optimisation of Real-World Transportation.

Juan Ye, Graeme Stevenson, and Simon Dobson. *Using Temporal Correlation and Time Series to Detect Missing Activity-Driven Sensor Events.* In *Proceedings of the 11th Workshop on Context and Activity Modelling and Recognition (CoMoRea'15).* St Louis, MO. 2015.

Chris Schneider, Adam Barker, and Simon Dobson. *Autonomous Fault Detection in Self-Healing Systems: Comparing Hidden Markov Models and Artificial Neural Networks.* In *Proceedings of the 4th International Workshop on Adaptive Self-Tuning Computing Systems (ADAPT-2014).* Vienna, at. 2014.

Graeme Stevenson, Gabriella Castelli, Juan Ye, Alberto Rossi, Simon Dobson, and Franco Zambonelli. *A Bio-Chemically Inspired Approach to Awareness in Pervasive Systems.* In *Proceedings of First International Workshop on Sensing and Big Data Mining (SenseMine 2013).* Rome, IT. 2013.

Simon Dobson, Alan Dearle, and Barry Porter. *Minimising Virtual Machine Support for Concurrency.* In *Proceedings of 5th ETAPS Workshop on Programming Language Approaches to Concurrency and Communication-cEntric Software (PLACES'13).* Rome, IT. 2013.

Graeme Stevenson, Jose Luis Fernandez-Marquez, Sara Montagna, Alberto Rosi, Giovanna di Marzo Serugendo Juan Ye, Mirko Viroli, Simon Dobson, and Akla-Esso Tchao. *Towards Situated Awareness in Urban Networks: A Bio-Inspired Approach.* In *Proceedings of the First International Workshop on Adaptive Service Ecosystems: Nature and Socially Inspired Solutions (ASENSIS'12)*, pp.53–58. Lyons, FR. 2012.

Graeme Stevenson, Mirko Viroli, Juan Ye, Sara Montagna, and Simon Dobson. *Self-Organising Semantic Resource Discovery for Pervasive Systems.* In *Proceedings of the First International Workshop on Adaptive Service Ecosystems: Nature and Socially Inspired Solutions (ASENSIS'12)*, pp.47–52. Lyons, FR. 2012.

Barry Porter, Alan Dearle, and Simon Dobson. *From Missions to Systems: Generating Transparently-Distributable Programs for Sensor-Oriented Systems.* In *Proceedings of the Seventh International Workshop on Middleware Tools, Services and Run-Time Support for Sensor Networks (MidSens'12)*, pp.1–6. Montreal ca. 2012.

Jose Luis Fernandez-Marquez, Graeme Stevenson, Akla-Esso Tchao, Juan Ye, Giovanna di Marzo Serugendo, and Simon Dobson. *Analysis of New Gradient Based Aggregation Algorithms for Data-Propagation in Distributed Networks.* In *Proceedings of the First International Workshop on Adaptive Service Ecosystems: Nature and Socially Inspired Solutions (ASENSIS'12).* Lyons, FR. 2012.

Juan Ye, Graeme Stevenson, Simon Dobson, Michael O'Grady, and Gregory O'Hare. *PI: Perceiver and Interpreter of Smart Home Datasets.* In *Proceedings of the 5th International Conference on Pervasive Computing Technologies for Healthcare (PervasiveHealth 2011)*, pp.131–138. Dublin, IE. May 2011. Nominated for best paper award.

Alberto Rosi, Simon Dobson, Marco Mamei, Graeme Stevenson, Juan Ye, and Franco Zambonelli. *Social Sensors and Pervasive Services: Approaches and Perspectives.* In *Proceedings of the Second IEEE Workshop on Pervasive Collaboration and Social Networking (PerCol 2011)*, pp.252–530. IEEE Press. Seattle, WA. 2011.

Graeme Stevenson and Simon Dobson. *Sapphire: Generating Java Runtime Artefacts from OWL Ontologies.* In *Proceedings of the 3rd International Workshop on Ontology-Driven Information Systems Engineering (ODISE 2011)*, pp.425–236. London, UK. 2011.

Graeme Stevenson, Juan Ye, and Simon Dobson. *On the Impact of the Temporal Features of Sensed Data on the Development of Pervasive Systems.* In *Proceedings of the International Workshop on Programming Methods for Mobile and Pervasive Systems at PERVASIVE 2010.* Helsinki, FI. May 2010.

Juan Ye, Lorcan Coyle, Susan McKeever, and Simon Dobson. *Dealing with Activities with Diffuse Boundaries.* In *Proceedings of the Workshop on How to Do Good Activity Recognition Research: Experimental Methodologies, Evaluation Metrics and Reproducility Issues at PERVASIVE 2010.* Helsinki, FI. May 2010.

Stephen Knox, Lorcan Coyle, and Simon Dobson. *Using Ontologies in Case-Based Activity Recognition.* In *Proceedings of the 23rd International Conference of the Florida Artificial Intelligence Research Society (FLAIRS-23).* Daytona Beach, FL. May 2010.

Michael O'Grady, Juan Ye, G.M.P. O'Hare, Simon Dobson, Richard Tynan, and Connor Muldoon. *A Middleware for Implicit Interaction.* In *Proceedings of the International Workshop on Instinctive Computing.* Volume 5897 of Lecture Notes in Artificial Intelligence. Springer Verlag. Pittsburgh, PA. 2010.

Simon Dobson. *Integrating Sensor Networks into the Future Internet (Extended Abstract).* In *Proceedings of the 2nd Euro-NF Workshop on Future Internet Architectures.* Santander, ES. 2009.

Juan Ye, Adrian K. Clear, Lorcan Coyle, and Simon Dobson. *On Using Temporal Semantics to Create More Accurate Human-Activity Classifiers.* In *Artificial Intelligence and Cognitive Science.* Lorcan Coyle and Jill Freyne, editors. Volume 6206 of LNCS. Springer-Verlag. 2009.

Josu Martinez and Simon Dobson. *Functionality Recomposition for Self-Healing.* In *Proceedings of the 4th International Conference on Software and Data Technologies.* Sofia, BG. 2009.

M.A. Razzaque and Simon Dobson. *Enhancement of Self-Organisation in Wireless Networking through a Cross-Layer Approach.* In *Proceedings of the 1st International Conference on Ad Hoc Networks.* Niagara Falls, ca. 2009.

Matthew Stabeler, Davide Cellai, Paddy Nixon, and Simon Dobson. *Delay Tolerant Networks and Spatially Detailed Human Mobility.* In *Proceedings of the Workshop on the Emergence of Delay- and Disruption-Tolerant Networks.* St Petersburg, RU. 2009.

Lorcan Coyle, Juan Ye, Susan McKeever, Stephen Knox, Matthew Stabeler, Simon Dobson, and Paddy Nixon. *Gathering Datasets for Activity Identification.* In *Proceedings of the Workshop on Developing Shared Home Behaviour Datasets to Advance HCI and Ubiquitous Computing Research at CHI 2009.* Boston, MA. 2009.

Graham Williamson, Davide Cellai, Simon Dobson, and Paddy Nixon. *Modelling Periodic Data Dissemination in Wireless Sensor Networks.* In *Proceedings of the 3rd UKSim European Symposium on Computer Modelling and Simulation.* IEEE Press. 2009.

Matthew Stabeler, Graeme Stevenson, Simon Dobson, and Paddy Nixon. *Basadaeir: Harvesting User Profiles to Bootstrap Pervasive Applications.* In *Late-Breaking Results: Adjunct Proceedings of the 7th International Conference on Pervasive Computing (PERVASIVE 2009).* 2009.

Eleanor O'Neill, Kris McGlinn, Eoin Bailey, Simon Dobson, and Kevin McCarthy. *Application Development Using Modelling and Dynamical Systems Analysis.* In *Proceedings of the 1st International Workshop on Context-Aware Middleware and Services*, pp.18–23. Dublin, IE. 2009.

Graeme Stevenson, Stephen Knox, Simon Dobson, and Paddy Nixon. *ONTONYM: A Collection of Upper Ontologies for Pervasive Application Development.* In *Proceedings of the Workshop on Context, Information and Ontologies Ontology (CIAO'09).* Heraklion, GR. 2009.

Susan McKeever, Juan Ye, Lorcan Coyle, and Simon Dobson. *A Multilayered Uncertainty Approach for Context-Aware Systems.* In *Late-Breaking Results: Adjunct Proceedings of the 6th International Conference on Pervasive Computing (PERVASIVE 2008)*, pp.1–4. Sidney, AU. 2008.

Michael Collins, Paddy Nixon, and Simon Dobson. *A Secure Lightweight Architecture for Wireless Sensor Networks.* In *Proceedings of the Second International Conference on Mobile Ubiquitous Computing, Systems, Services and Technologies (UBICOMM'08).* Valencia, ES. 2008. Winner of Joint Best Paper Award.

Olga Murdoch, Lorcan Coyle, and Simon Dobson. *Ontology-Based Query Recommendation as a Support to Image Retrieval.* In *Proceedings of the 19th Irish Conference in Artificial Intelligence and Cognitive Science.* Cork, IE. 2008.

Simon Dobson and Paddy Nixon. *Stable Autonomic Adaptation: A Grand Challenge.* In *Proceedings of the Third IEEE Workshop on Hot Topics for Autonomic Computing (HotAC'08).* Chicago IL. 2008.

Adrian K. Clear, Ross Shannon, Thomas Holland, Simon Dobson, Aaron Quigley, and Paddy Nixon. *Situvis: Visualising Multivariate Context Information to Evaluate Situation Specifications.* In *Proceedings of the 2nd International Workshop on Ubiquitous Systems Evaluation (USE 2008).* Seoul, KR. 2008.

Simon Dobson. *From Adaptive Systems to Adaptive Spaces.* In *Resilient and Survivable Networks, Infrastructure and Services.* Schloß Dagstuhl. 2008.

Michael Collins, Simon Dobson, and Paddy Nixon. *Identifying and Isolating Aberrant Nodes in Wireless Sensor Networks.* In *Proceedings of the 3rd International Conference for Internet Technologies and Secured Transactions.* Dublin, IE. 2008. Winner of best paper award.

Simon Dobson. *Facilitating a Well-Founded Approach to Autonomic Systems.* In *Proceedings of the 5th IEEE Workshop on the Engineering of Autonomic and Autonomous Systems (EASe 2008).* IEEE Press. Belfast, UK. 2008.

Steve Neely, Graham Williamson, Hui Zhang, Graeme Stevenson, and Simon Dobson. *Location Detection with Smart Zigbee Sensors.* 2007. 2nd Workshop on Wireless Sensor Networks Research in Ireland (WiSEN 2007).

Stephen Knox, Adrian K. Clear, Ross Shannon, Lorcan Coyle, Simon Dobson, Aaron Quigley, and Paddy Nixon. *Towards Scatterbox: A Context-Aware Message Forwarding Platform.* In *Proceedings of the Fourth International Workshop Modeling and Reasoning in Context (MRC 2007).* Copenhagen, DK. 2007.

Juan Ye, Lorcan Coyle, Simon Dobson, and Paddy Nixon. *Using Situation Lattices to Model and Reason About Context.* In *Proceedings of the Fourth International Workshop Modeling and Reasoning in Context (MRC 2007).* Copenhagen, DK. 2007.

Lorcan Coyle, Juan Ye, Emerson Loureiro, Stephen Knox, Simon Dobson, and Paddy Nixon. *A Proposed Approach to Evaluate the Accuracy of Tag-Based Location Systems.* In *Proceedings of the First Workshop on Ubiquitous Systems Evaluation at Ubicomp'07.* 2007.

M.A. Razzaque, Simon Dobson, and Paddy Nixon. *Context Awareness through Cross-Layer Network Architecture.* In *Proceedings of the First International Workshop on Wireless Mesh and Ad Hoc Networks.* Honolulu, HI. 2007.

Simon Dobson, Paddy Nixon, Lorcan Coyle, Steve Neely, Graeme Stevenson, and Graham Williamson. *Construct: An Open Source Pervasive Systems Platform.* In *Proceedings of the 4th IEEE Consumer Communciations and Networking Conference*, pp.1203–1204. IEEE Press. Las Vegas, NV. 2007.

Michael Collins, Simon Dobson, and Paddy Nixon. *Security Issues with Pervasive Computing Frameworks.* In *Pervasive 2006 Workshop Proceedings*, pp.679–685. Thomas Strang, Vinny Cahill, and Aaron Quigley, editors. Springer Verlag. Dublin, IE. 2006. Workshop on Privacy, Trust and Identity Issues for Ambient Intelligence.

Adrian K. Clear, Stephen Knox, Juan Ye, Lorcan Coyle, Simon Dobson, and Paddy Nixon. *Integrating Multiple Contexts and Ontologies in a Pervasive Computing Framework.* In *Contexts and Ontologies: Theory, Practice and Applications.* Riva Del Garda, IT. 2006.

Simon Dobson and Juan Ye. *Using Fibrations for Situation Identification.* In *Pervasive 2006 Workshop Proceedings*, pp.645–651. Thomas Strang, Vinny Cahill, and Aaron Quigley, editors. Springer Verlag. Dublin, IE. 2006. Workshop on Combining Theory and System-Building.

Graham Williamson, Graeme Stevenson, Steve Neely, Simon Dobson, and Paddy Nixon. *An Evaluation Framework for Disseminating Context Information with Gossiping.* In *Proceedings of the 1st European Conference on Smart Sensing and Context.* Volume 4272 of LNCS. 2006.

Syarulnaziah Anawar, Lorcan Coyle, Simon Dobson, and Paddy Nixon. *Context Delivery in Ad Hoc Networks Using Enhanced Gossiping Algorithms.* In *Proceedings of the 1st European Conference on Smart Sensing and Context.* Volume 4272 of LNCS. 2006.

Lorcan Coyle, Evelyn Baife, Graeme Stevenson, Steve Neely, Simon Dobson, Paddy Nixon, and Barry Smyth. *Supplementing Case-Based Recommenders with Context Data.* In *Proceedings of the 1st International Workshop on Case-Based Reasoning and Context-Awareness at ECCBR'06.* Ölüdeniz, TK. 2006.

Simon Dobson. *Hybridising Events and Knowledge in an Infrastructure for Context-Adaptive Systems.* In *Proceedings of the IJCAI 2005 Workshop on AI and Autonomic Communications.* Roy Sterrit, Simon Dobson, and Mikhail Smirnov, editors. 2005.

Simon Dobson. *The de Bruijn Principle and the Compositional Design of Programming Languages.* In *Proceedings of the 17th International Workshop on Implementation and Application of Functional Languages.* 2005.

Graeme Stevenson, Lorcan Coyle, Steve Neely, Simon Dobson, and Paddy Nixon. *Construct – a Decentralised Context Infrastructure for Computing Environments.* 2005. IT&T Annual Conference.

M.A. Razzaque, Simon Dobson, and Paddy Nixon. *Categorisation and Modelling of Quality in Context Information.* In *Proceedings of the IJCAI 2005 Workshop on AI and Autonomic Communications.* Roy Sterrit, Simon Dobson, and Mikhail Smirnov, editors. 2005.

Kieran Delaney, Simon Dobson, Kafil Mahmood Razeeb, and John Barton. *Creating the Disappearing Computer – Using Augmented Materials to Build Collaborative Augmented Artefacts.* 2005. IT&T Annual Conference.

Simon Dobson. *Creating Programming Languages for (and from) the Internet.* In *Workshop on Evolution and Reuse of Language Specifications for Domain-Specific Languages at ECOOP'04.* Oslo, NO. 2004.

Paddy Nixon, Simon Dobson, Sotirios Terzis, and Feng Wang. *Architectural Implications for Context-Adaptive Smart Spaces.* In *Proceedings of the International Workshop on Networked Applicances*, pp.156–161. IEEE Press. 2003.

Paddy Nixon, Feng Wang, Sotirios Terzis, and Simon Dobson. *Engineering Context-Aware Systems.* In *Proceedings of the International Workshop on Engineering Context-Aware Object-Oriented Systems and Environments.* Seattle, WA. 2002.

Sotirios Terzis, Paddy Nixon, Vinny Wade, Simon Dobson, and John Fuller. *Building the next Generation of Groupware.* In *Enterprise Information Systems.* Joaquim Filipe, editor. Kluwer Academic Press. 2001.

Tim Walsh, Paddy Nixon, and Simon Dobson. *An Integrated System for Managing Intelligent Buildings.* In *Managing Interactions in Smart Environments.* Paddy Nixon, Gerard Lacey, and Simon Dobson, editors. Springer Verlag. 2000.

Richard Greenane and Simon Dobson. *Integrating LONWorks into an Open Systems Control Environment.* 1999. Presented at the LONWorks'99 trade conference.

Paddy Nixon, Vinny Wade, Simon Dobson, John Fuller, and Sotirios Terzis. *Designing Components for a Virtual Organisation: A Case Study.* In *Proceedings of Objects, Components and the Virtual Enterprise.* Vancouver, ca. 1998.

Simon Dobson and Paddy Nixon. *(Free) Radical Programming Languages.* In *Proceedings of the 5th CaberNet Radicals Workshop.* Oporto, PT. 1998.

Simon Dobson and Victoria Burrill. *Towards Improving Automation in the World Wide Web.* In *New Directions in Software Development.* British Computer Society. 1995.

Simon Dobson and Andy Wellings. *A System for Building Scalable Parallel Applications.* In *Programming Environments for Parallel Computing*, pp.218–230. Nigel Topham, Roland Ibbett, and Thomas Bemmerl, editors. North Holland Elsevier. 1992.

Simon Dobson and Andy Wellings. *Programming Highly Parallel General-Purpose Applications.* In *Proceedings of the First BCS Workshop on Abstract Machine Models for Highly Parallel Computing.* University of Leeds. 1991.

Book chapters

Mirko Viroli, Franco Zambonelli, Graeme Stevenson, and Simon Dobson. *From SOA to Pervasive Service Ecosystems: An Approach Based on Semantic Web Technologies.* In *Adaptive Web Services for Modular and*

Reusable Software Development: Tactics and Solutions. Javier Cubo and Guadalupe Ortiz, editors. IGI Global. ISBN 1-466-620897. 2012.

Simon Dobson and Aaron Quigley. *Healthcare in a Pervasive World*. In *This Pervasive Day: The Potentials and Perils of Pervasive Computing*, pp.99–111. Jeremy Pitt, editor. Imperial College Press. ISBN 1-848-167482. 2012.

M.A. Razzaque, Simon Dobson, and Paddy Nixon. *Cross-Layer Optimisations for Autonomic Networks*. In *Advanced Autonomic Networking and Communication*, pp.127–148. Monique Calisti, Sven van der Meer, and John Strassner, editors. Springer Verlag. ISBN 978-3-7643-8568-2. 2008.

Kieran Delaney and Simon Dobson. *Augmenting Materials to Build Cooperating Objects*. In *Ambient Intelligence with Microsystems: Augmented Materials and Smart Objects*, pp.19–46. Kieran Delaney, editor. Volume 18 of Microsystems. Springer Verlag. ISBN 978-0-387-46293-9. 2008.

Juan Ye, Simon Dobson, and Paddy Nixon. *An Overview of Pervasive Computing Systems*. In *Ambient Intelligence with Microsystems: Augmented Materials and Smart Objects*, pp.3–17. Kieran Delaney, editor. Volume 18 of Microsystems. Springer Verlag. ISBN 978-0-387-46293-9. 2008.

Simon Dobson. *Co-Design for Context Awareness in Pervasive Systems*. In *Ambient Intelligence with Microsystems: Augmented Materials and Smart Objects*, pp.297–307. Kieran Delaney, editor. Volume 18 of Microsystems. Springer Verlag. ISBN 978-0-387-46293-9. 2008.

Simon Dobson. *Report from the ECOOP 2004 Workshop on Component-Oriented Approaches to Context-Aware Computing*. In *ECOOP'04 Workshop Reader*, pp.84–93. Jacques Malenfant and Bjarte Østvold, editors. Volume 3344 of LNCS. Springer Verlag. 2004.

Posters

Michael Pitcher, Ruth Bowness, Simon Dobson, and Stephen Gillespie. *A Network-Based Metapopulation Model to Simulate a Pulmonary Tuberculosis Infection*. 2017. Poster at the 6th International Conference on Complex Networks and their Applications.

Saray Shai and Simon Dobson. *Epidemic Spreading in Adaptive Multilayer Networks*. May 2015. Poster at the SIAM Workshop on Network Science.

Saray Shai, Dror Kenett, Yoed Kenett, Miriam Faust, Simon Dobson, and Shlomo Havlin. *Attacks on Modular Networks*. 2015. Poster at the International School and Conference on Network Science (NetSci'15).

Aleksejs Sazonovs, Simon Dobson, and Oscar Gaggiotti. *A Metapopulation Model for Predicting the Success of Genetic Control Measures for Malaria*. 2015. Poster at the SICSA Workshop on Computational Ecology.

Saray Shai and Simon Dobson. *Bursty Activity in Coupled Networks*. 2013. Poster at the International School and Conference on Network Science (NetSci'13).

Eoin Bailey, Simon Dobson, and Aaron Quigley. *Dynamical Systems Theory Applied to Autonomics*. 2007. Poster at the IBM Centres for Advanced Study Conference (CASCON).

Eoin Bailey, Simon Dobson, and Paddy Nixon. *Semantics of Autonomic Systems*. 2006. Poster at the IBM Centres for Advanced Study Conference (CASCON).

Tim Walsh, Paddy Nixon, and Simon Dobson. *As Strong as Possible Mobility*. In *Proceedings of the 22nd Internatioal Conference on Software Engineering*, pp.779. 2000.

Simon Dobson, Victoria Marshall, and Brian Ritchie. *STICKS and STONES: Architectures for Modular WWW Software*. May 1996. Poster at the 5th International World Wide Web conference.

Keynotes

Simon Dobson. *How Good Is My Dataset?* 2020. Invited talk to the MAKI (Multi-mechanism Adaptations for the Future Internet) workshop on Autonomous decision-making in networked systems under uncertainty.

Simon Dobson. *Understanding Sensing from a More Formal Perspective*. 2019. Invited talk at the Scottish Symposium on Formal Methods for Verification and Synthesis.

Simon Dobson. *Making the Transition from Sensors to Sensor Systems.* 2018. Keynote at the Conference on Design and Architectures for Signal and Image Processing (DASIP'18).

Lei Fang and Simon Dobson. *When Things Get Noisy: Programming in the Face of Ubiquitous Uncertainty.* 2014. Invited talk at the International Conference on Cloud and Autonomic Computing (CAC'14).

Simon Dobson. *Ubiquitous Autonomic Management.* 2009. Keynote presentation at the 6th International Workshop on Managing Ubiquitous Communications and Services.

Simon Dobson. *Autonomic Networking: Achieving Stability in the Face of Pervasive Uncertainty.* 2006. Keynote presentation at Autonomic Networking.

Invited presentations

Simon Dobson. *Sensor Tensors.* 2022. Invited talk for LEISYS'2022.

Simon Dobson. *Sensor Interpretation Data Wrangling.* 2022. Invited talk to the School of Computer Science and Information Technology, University College Cork.

Simon Dobson. *A Possible Smeared Phase Transition in Epidemic Track-and-Trace.* 2020. School seminar, School of Computer Science, University of St Andrews.

Simon Dobson. *Exploring Epidemic Spreading Using Network Models.* 2020. Invited talk to the Institute of Mathematics and its Applications (North-West branch).

Simon Dobson. *Minimal Sensing: The Target Counting Problem.* 2017. Invited talk in the St Andrews Institute for Data-Intensive Research 'Summer of Data' series.

Simon Dobson, Juan Ye, and Lei Fang. *Making Sense of Sensing.* 2017. Invited talk to the Department of Computer Science, University of York.

Simon Dobson. *Modelling Urban Networks: Some Results and Their Limitations.* 2016. Talk in the Leeds Applied Nonlinear Dynamics seminar series, University of Leeds.

Simon Dobson. *A Complex Cocktail of Networks and Reality.* 2016. Presentation at the St Andrews Big Data and Discrete Mathematics Symposium.

Simon Dobson and Saray Shai. *Complex Networks and Complex Processes.* 2014. Invited talk to the Department of Computer Science, University of York.

Simon Dobson. *From Forth to Tay: A Component-Based Extensible Virtual Machine for Compact Programs.* 2012. Invited talk to the School of Computing, University of Kent.

Simon Dobson. *Mission Maybe Possible: Improving the Programming Model for Wireless Sensor Networks.* 2012. Invited talk at the IDEAS Institute, Robert Gordon University.

Simon Dobson. *The Computer Is the New Microscope.* 2011. Professorial inaugural lecture, University of St Andrews.

Simon Dobson and Juan Ye. *Sensor and Sense-Ability: Building Systems in the Face of Uncertainty.* 2011. Invited talk for the Edinburgh Branch of the British Computer Society.

Simon Dobson. *Progamming for Adaptive Sensor Networks: Back to the Future.* 2010. Invited talk to the IFIP WG2.11 workshop on Generative Programming.

Simon Dobson. *Controlling Sensors through Physics: Some Ideas for the Well-Founded Control of Mobile Sensor Networks.* 2009. Invited talk at the Stevens Institute of Technology.

Simon Dobson. *What Is the Correct Semantic Basis for Adaptive Systems?* 2009. Invited talk in the Lero Foundations series.

Simon Dobson. *Semantic Challenges of Adaptive Systems.* 2009. Invited talk at the Department of Computer Science, University of Liverpool.

Steve Neely, Graham Williamson, Hui Zhang, Graham Stevenson, and Simon Dobson. *Device Positioning Using Smart Zigbee Beacons.* 2008. Presentation at the Tyndall National Institute's National Access Programme open day.

Simon Dobson. *From Adaptive Systems to Adaptive Spaces.* 2007. Invited presentation at the Dagstuhl seminar on Resilient and Survivable Networks, Infrastructures and Services.

Simon Dobson. *Towards an Integrated Internet of Things.* 2007. Invited presentation at the joint ERCIM/ETSI Infinity Initiative seminar series.

Simon Dobson and Juan Ye. *A Simple Semantic Model for Adaptive Pervasive Systems.* 2006. Invited talk to the Department of Computer Science, University of Leicester UK.

Simon Dobson. *Nirvana: Work-in-Progress.* 2005. Invited talk to the Department of Computer Science, Stevens Institute of Technology, Hoboken NJ.

Simon Dobson. *Towards a Semantics of Pervasive Computing.* 2004. Invited talk to the Department of Computing and Information Sciences, University of Strathclyde, and the Department of Computer Science, University College Dublin.

Simon Dobson. *Putting Research to Work.* 2003. Invited talk to the Irish Business Employers' Confederation.

Simon Dobson. *Space Is the Computer.* 2000. Invited talk to the Oxford University Computing Laboratory.

Simon Dobson. *Building Programming Languages from Components.* 2000. Invited talk to the Microsoft Research Institute.

Simon Dobson. *Fragmenting Languages.* 1998. Invited talk to the Department of Computer Science, California Institute of Technology.

Simon Dobson. *Correctly Formalising the Wrong Things.* 1997. Invited talk to the Irish Formal Methods Symposium.

Simon Dobson. *Weak Coherence with Shared Abstract Data Types.* 1996. Invited talk to the Department of Computer Science, University of Manchester.

Simon Dobson and Victoria Burrill. *Federated World Wide Webs.* 1996. Invited talk to the Department of Computer Science, University of Cardiff.

Strategic reports

Seán Baker, Simon Dobson, Pat Donnellan, Paul Kavanagh, Dan Maher, Tommy McCabe, Richard McQuillen, Paddy Holohan, Michael O'Connor, and Declan O'Mahony. *Successful Commercialisation of R&D.* Irish Business Employers' Confederation/ICT Ireland. 2004.

Seán Baker, Simon Dobson, Dan Flinter, Michael Grufferty, Paul Kavanagh, Dan Maher, Tommy McCabe, and Richard McQuillen. *Commercialisation of R&D in the ICT Sector.* Irish Business Employers' Confederation/ICT Ireland. 2004.

Technical reports

Peter Mann, Lei Fang, and Simon Dobson. *Mixing Patterns in Graphs with Higher-Order Structure.* Technical report arXiv:2210.02528. arXiv. 2022.

Simon Dobson. *Where's Waldo? or, a Taxonomy for Thinking About Location in Pervasive Computing.* Technical report TCD-CS-2004-05. Department of Computer Science, Trinity College Dublin. 2004.

Howard Kim and Simon Dobson. *An Improved Approach to Geographically Locating Web Clients.* Technical report TCD-CS-2001-49. Department of Computer Science, Trinity College Dublin. 2004.

Tim Walsh, Paddy Nixon, and Simon Dobson. *As Strong as Possible Mobility: An Architecture for Stateful Object Migration on the Internet.* Technical report TCD-CS-2000-11. Department of Computer Science, Trinity College Dublin. 2000.

Tim Walsh, Paddy Nixon, and Simon Dobson. *A Review of Mobility Systems.* Technical report TCD-CS-2000-13. Department of Computer Science, Trinity College Dublin. 2000.

Linda Farragher and Simon Dobson. *Java Decaffeinated: Experiences Building a Programming Language from Components.* Technical report TCD-CS-2000-22. Department of Computer Science, Trinity College Dublin. 2000.

Simon Dobson. *What's in an Ion?* Department of Computer Science, Trinity College Dublin. 2000.

Tim Walsh, Paddy Nixon, and Simon Dobson. *A Managed Architecture for Mobile Distributed Systems.* Technical report TCD-CS-1999-03. Department of Computer Science, Trinity College Dublin. 1999.

Simon Dobson. *A First Taste of Vanilla.* Technical report TCD-CS-1998-20. Department of Computer Science, Trinity College Dublin. 1998.

Simon Dobson. *The O2 Programming Language.* Department of Computer Science, Trinity College Dublin. 1998. Reference manual for the Vanilla implementation of Abadí and Cardelli's O2 language.

Simon Dobson. *Modular Parsers.* Technical report TCD-CS-1998-19. Department of Computer Science, Trinity College Dublin. 1998.

Chris Tofts, Don Goodeve, and Simon Dobson. *Abstraction and Implementation of a Lightweight Distributed Termination Protocol.* Technical report YCS-98-307. Department of Computer Science, University of York. 1998.

Simon Dobson. *A Common Object Model for Large Experimental Systems: A Proposal.* Rutherford Appleton Laboratory. 1997.

Simon Dobson. *An Introduction to the Theories of Bulk Data Types.* Rutherford Appleton Laboratory. 1994.

Simon Dobson, Victoria Burrill, and Julian Gallop. *Semantic Mark-up of Generalised Documents.* Technical report WWW/01/94. Rutherford Appleton Laboratory. 1994.

Simon Dobson and Victoria Burrill. *Preliminary Results from the Database Markup of Hyperdocuments.* Technical report WWW/03/94. Rutherford Appleton Laboratory. 1994.

Simon Dobson and Victoria Burrill. *Lightweight Data Mark-up.* Technical report WWW/04/94. Rutherford Appleton laboratory. 1994.

Simon Dobson. *Data and Hypermodels Are Isomorphic: Manipulating Hyperdocuments at a Logical Level.* Technical report WWW/02/94. Rutherford Appleton Laboratory. 1994.

Simon Dobson. *Writing Compilers Using ML.* Technical report PPG/99/93. Rutherford Appleton Laboratory. 1993.

Simon Dobson. *An Approach to Scalable Parallel Programming.* Technical report YCST/93/03. Department of Computer Science, University of York. 1993.