

Sean Kenneth Bechhofer

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A: Personal record

A1. Full name

Sean Kenneth Bechhofer.

A2. Date of birth

11th April 1966.

A3. Education - schools and universities attended

1988-1991 University of Manchester, Department of Computer Science.

Postgraduate student under Dr. David Rydeheard, studying Category Theory, Type Theory and Logics.

1985-1988 University of Bristol.

BSc. Honours (1st Class) Degree in Mathematics. Final year courses taken included: Functional Programming, Complexity, Logic, Category Theory, Foundations of Mathematics, Computation.

1984-1985 Stevenson College of Further Education, Edinburgh

'A' Levels: Mathematics (A), Physics (A) and Computer Science (B).

1978-1984 The Royal High School, Edinburgh

'O' Grades: Arithmetic, Maths, English, Physics, Biology, Chemistry, German, Music. 'Higher' Grades: Maths, Physics, Chemistry, English, German. Certificate of Sixth Year Studies: Maths I, Maths II, Maths V, Physics.

1971-1978 Davidson's Mains Primary School, Edinburgh.

A4. Qualifications - academic and professional - and membership of bodies

BSc. Honours (1st Class) Degree in Mathematics. Bristol 1988.

Senior Fellow of the Higher Education Academy. September 2018.

A5. Previous employment and appointments held

1993-June 2004

University of Manchester, Department Computer Science

For the ten years previous to my appointment to faculty, I worked as a researcher in the University of Manchester Department of Computer Science, initially as a Research Associate within the Medical Informatics Group

(MIG), and latterly as a Research Fellow within the Information Management Group (IMG). During this time I have been associated with a number of different projects. Although at any one time, I have been primarily associated with a single project, the nature of the research groups, particularly the IMG, and my role as a Research Fellow within the group, means that I have constantly been providing input to other, related work.

WonderWeb (EU IST-2001-33052)

WonderWeb was a European project aimed at providing infrastructure for the Semantic Web. Manchester were the coordinating partners, and I played the day to day role of project manager, in particular organising project meetings and the timely production of project deliverables. At the 2003 project review the management of the project was described as "excellent". The official final review results are pending – informal feedback from the final review was extremely positive.

OntoWeb (EU IST-2000-29243)

OntoWeb was an EU Network of Excellence, designed to foster collaboration between European researchers involved in work relating to ontologies. I was responsible for the production of a number of project deliverables.

COHSE (EPSRC GR/M75426)

Between 1999 and 2000, I worked as a Research Fellow on the COHSE (Conceptual Open Hypermedia Services Environment) project, which investigated the combination of an open hypermedia system with terminological reasoning services. This project was in conjunction with the Intelligence, Agents and Multimedia group at the University of Southampton. Although the EPSRC project has finished, we are currently involved in a small follow-on supported by Sun Microsystems which I am managing.

OIL and OilEd

I was involved with the consortium responsible for OIL (the Ontology Inference Layer). In addition, I was responsible for the development of OilEd, an Oil Editor. OilEd was the first graphical editor for the new breed of Semantic Web ontologies languages such as OIL, DAML+OIL and OWL that made use of a description logic reasoner to classify ontologies and detect inconsistencies. The tool was used in a number of institutions, both research and commercial, and was employed on a number of academic courses. To date nearly 9,000 users have registered to download OilEd. The approaches used in OilEd to handle DL-style languages have strongly influenced other ontology development tools such as Protégé.

STARCH (EPSRC R/L71216)

Between 1997 and 1999, I was employed as a Research Fellow on the STARCH project, which investigated the use of a terminological logic in cataloguing and retrieval of archives. This involved investigations into the nature of thesauri and keyword collections, their use in retrieval, and the extension and development of existing tools to meet the needs of the tasks.

CAMELOT (EPSRC GR/L54516)

Although not directly employed on the CAMELOT project, I was involved in implementation work in the project, providing major contributions towards the design and implementation of a CORBA based wrapper for the FaCT Description Logic System.

TAMBIS (BBSRC BIF/05344)

Within TAMBIS, I was primarily responsible for the development and preliminary implementations of the ontology-driven interface used within TAMBIS, along with investigating the use of terminological logics for query construction.

GALEN (EC-AIM), PAEPR (EPSRC GR/J98820)

As an RA on the GALEN and PAEPR projects, I was involved with the building and maintenance of the GALEN Terminology Server, with my main responsibility being the implementation of the core reasoning engine and associated tools.

1991-1992

ICL Computers Limited, Corporate Systems Division, West Gorton, Manchester

Employed on a DTI Teaching Company Scheme, working on a project in collaboration with the University of Manchester Department of Computer Science. The project was concerned with developing an object-oriented front end to a network database-based software development environment (CADES), and made strong use of the O-O language Eiffel. During the project I was responsible for the development of a software component known as the Environment Processor (EP), a tool which analysed fragments of C code and produced standalone compilable files. The development required the use of Eiffel, Modula-2 and the Karlsruhe Compiler Toolkit, a suite of compiler generation tools. As a Teaching Company Associate I was also given training in management and personal skills.

Pre 1991

While a student, I had a variety of part-time and vacation jobs including computer programmer for two firms in Edinburgh and directory enquiries operator for British Telecom. While a research student, I was a demonstrator in undergraduate programming labs, assisting students with problems and marking assignments.

A6. Present appointment

July 2004-

University of Manchester, School Computer Science

Since July 2004, I have been a faculty member of the School of Computer Science, originally being appointed as a Lecturer with promotion to Senior Lecturer in 2014.

A7. Visiting appointments/secondments during employment with the University of Manchester

In 2012, I spent four month as a visiting researcher at the Oxford e-Research Centre.

B: Teaching

B1. Current departmental teaching duties; undergraduate and graduate

Year 1 Tutor

I am Undergraduate Tutor for Year 1 students in Computer Science. The role involves overseeing the pastoral care of Year 1 students. I have been in this role for five years. Previous to this, I was Year 2 tutor for two years, with an oversight of the pastoral care of Year 2 students.

Undergraduate Teaching

I am course unit leader for a Level 1 course:

COMP11212 Fundamentals of Computation

Postgraduate Teaching

I am course unit leader for an MSc course:

COMP62342 Ontology Engineering for the Semantic Web

The course provides an introduction to the Semantic Web, Ontology Languages for the Semantic Web, Description Logic and OWL Reasoning, Ontology Building and Ontology Patterns. I have been teaching this course unit since 2008/9. I also taught the course in 2005/06 (as CS646), 2006/07 and 2007/08 (with Alan Rector).

Previous Teaching Responsibilities

I have also designed and delivered past course units including:

COMP16121 Object Oriented Programming with Java (I)

COMP16212 Object Oriented Programming with Java (II)

COMP34512 Knowledge Representation

Supervision and Assessment

I supervise final year and Masters projects with a rough average of two to three final year and one or two masters project each year over my time on faculty staff.

Internal Examining (PhD)

- Giorgio Brajnik: *Using UML State Machines for Interaction Design and Usability Evaluation*, January 2017
- Pinar Alper: *Towards Harnessing Computational Workflow Provenance for Experiment Reporting*, March 2016
- Klitos Christodoulou: *On Techniques for Pay-As-You-Go Data Integration of Linked Data*, January 2015

- Matthew Gamble: *Modelling and Computing the Quality of Scientific Information on the Web of Data*, March 2014
- Matthew Horridge: *Justification Based Explanation in Ontologies*, August 2011
- Roland Ukor: *FACOB: A Process-Oriented Framework for Capability Outsourcing in B2B Collaborations*, June 2009
- David Thorne: *A Semantic Architecture for Visualisation Applications in the Life Sciences*, Feb 2009
- Julian Seidenberg: *Asynchronous Multi-User Editing of Semantic Web Ontologies*, Feb 2008
- Antoon Goderis: *Workflow Re-Use and Discovery in Bioinformatics*, April 2008
- Lei Li: *The Instance Store 2: Reasoning over Large Numbers of Related Instances*, December 2006
- Shenghui Wang: *Semantics of Natural Language Descriptions of Continuous Properties*, April 2007
- Yeliz Yesilada: *Annotation and Transformation of Web Pages to Improve Mobility for Visually Impaired Users*, August 2005

Internal Examining (MPhi)

- Francis Kwong: *Practical Approach to Explaining ALC Subsumption* (MPhil) 2004

External Examining (PhD)

- Thomas Wilmering: *Applications of Semantic Web Technologies in Music Production*, Queen Mary University of London, Jan 2014
- Afraz Jaffri: *URI Identity Management for the Semantic Web: The Consistent Reference Service*, University of Southampton, August 2009
- Michele Pasin: *Ontological Requirements for Supporting Smart Navigation of Philosophical Resources*, Open University, Jan 2009

External Examining (MSc)

- Russell Andrew Cloran: *Trust on the Semantic Web*, MSc thesis from Rhodes University, South Africa 2007

B2. Other teaching; internal and external

Internal Teaching

Group Project

I have acted as a tutor on the Level 1 course:

COMP10120 First Year Team Project

This is a core First Year module requiring students to design and build a web based application. The module adopts an Enquiry-Based Learning approach, with weekly tutor meetings facilitating the students' work. I have acted as a tutor since the academic year 2006/07 but did not supervise a group in 2011/12 or 2012/13.

External Teaching

I was an invited tutor for the KnowledgeWeb Summer School on Ontological Engineering and the Semantic Web, lecturing on the topic of *Knowledge Representation Languages for the Semantic Web*. I taught at the summer school in 2005, 2006, 2007, 2008 and 2009, 2011, 2012 and 2013. The summer school did not run in 2010.

I was also invited as a presenter on two "Invitation Only" Tutorials preceding the International Semantic Web Conference in Korea in November 2007 and Karlsruhe in November 2008.

I have given and contributed to a number of other tutorials including:

Programming to the OWL API Invited tutorial, Semantic Technologies Conference, San Jose, California. May 2007.

Semantic Grid Tutorial at the World Wide Web Conference, Banff, Canada, May 2007.

Semantic Grid Tutorial in Manchester, February 2007.

Tutorial on OWL Invited tutorial, Center for Computation & Technology, Louisiana State University, Baton Rouge, LA. August 2006.

Semantic Grid 101 Tutorial at Global Grid Forum 16, Athens, February 2006. With Carole Goble.

Tutorial on OWL at the 2nd International Semantic Web Conference, ISWC, Sanibel Island, Florida, October 2003. With Ian Horrocks and Peter Patel-Schneider.

Description Logic Tutorial Digital Enterprise Research Institute, Innsbruck, November 2003. With Ian Horrocks.

Introduction to Ontologies CO-ODE Tutorials, presented on a number of occasions in Manchester. <http://www.co-ode.org/events/>.

In 1992, while at ICL, in collaboration with a colleague, I developed and delivered an in-house course on Object Oriented Programming using Eiffel. I was subsequently invited back to ICL in 1993 to deliver the course again.

In 2008 I completed the University programme for New Academics (formerly known as the Teaching and Learning course). I have also received University training on Equality and Diversity issues.

B3. Continuing education or extra-mural teaching

B4. Publications related to teaching

B5. Innovative work and contributions to curriculum reform and development

B6. Examination responsibilities

B7. Results of assessment of teaching ability

B8. Appointments held as Course Director or Tutor

B9. Voluntary activities with students

B10. Statement on teaching

Since joining the lecturing staff in the School, I have been involved in the delivery of several core course units at Undergraduate level. I was part of the team that developed and delivered two course units on Object

Oriented Programming in Year 1. These units ran for over ten years and I am again part of the team revising the material for delivery in AY19-20.

I have been course unit leader on a core Year 1 unit on Fundamentals of Computation for four years. This unit uses a combination of lectures (primarily looking at worked examples), comprehensive notes and practical examples classes, with both online and paper materials.

Since 2006/07 I have been a tutor on what is now know as COMP10120, a group project for First Year students. In COMP10120, the students are given little explicit guidance, but are expected to learn through a process of enquiry guided by the students themselves. I believe that the introduction of the group project was an excellent move. It provides our students with invaluable experience, hopefully steering them away from mark-driven attitudes and a desire for "spoon-feeding" that can sometimes be observed.

Examples and "hands-on" experience are also key to the materials I have developed for tutorials relating to KR languages. For those users without a background in logic or KR, concrete examples along with tools that allow examination and interaction with the models facilitates understanding of the formalism. Tools such as OilEd, developed primarily as a research tool, proved vital in supporting this teaching activity.

I believe that providing courses in sympathy with the key research agendas of staff is crucial. Research and teaching activities should not be distinct, but overlap. This is of particular importance in Manchester, where the School has a number of world-class researchers. By doing this we can: 1) ensure that staff are teaching topics in which they have a genuine interest; and 2) provide a more attractive syllabus for potential students with topics presented by leading researchers.

I take great care in the development and delivery of teaching materials, a fact that is borne out in the consistently high scores that I have received in student CEQs.

I also believe that we should make better use of data analysis in understanding cohort performance. To this end, I have developed software that supports the analysis and visualisation of exam results. This has been invaluable in identifying outliers and course units that are in need of attention.

C: Research and academic/professional standing

C1. Publications

Authored Books

Edited Books

Conference Proceedings

- [1] Sean Bechhofer, Manfred Hauswirth, Jörg Hoffmann, and Manolis Koubarakis, editors. *The Semantic Web: Research and Applications, 5th European Semantic Web Conference, ESWC 2008, Tenerife, Canary Islands, Spain, June 1-5, 2008*, volume 5021 of *Lecture Notes in Computer Science*. Springer, 2008.

Workshop Proceedings

- [1] Sean Bechhofer, Volker Haarslev, Carsten Lutz, and Ralf Möller, editors. *ADL'04 Third International Workshop on Applications of Description Logics*, volume 115. CEUR Electronic Workshop Proceedings, 2004.

Short Works

Conference Contributions, Refereed

- [1] Sean Bechhofer, Kevin R Page, David Weigle, György Fazekas, and Thomas Wilmering. Linked data publication of live music archives and analyses. In Claudio d'Amato, Miriam Fernandez, Valentina Tamma, Freddy Lecue, Philippe Cudre-Mauroux, Juan Sequeda, Christoph Lange, and Jeff Heflin, editors, *The semantic web - ISWC 2017*, volume part 2 of *Lecture notes in computer science*, pages 29–37, Germany, 2017. Springer.
- [2] Nicholas Gould, William Mackaness, Sean Bechhofer, Robert Stevens, and Laurie Cooper. Personalised information systems in multi-modal transportation decision making. In *Geographical Information Science Research UK, GISRUK 2017*, 4 2017. Geographical Information Science Research UK, GISRUK 2017 ; Conference date: 18-04-2017 Through 21-04-2017.
- [3] Kevin R. Page, Sean Bechhofer, György Fazekas, David M. Weigl, and Thomas Wilmering. Realising a Layered Digital Library: Exploration and Analysis of the Live Music Archive through Linked Data. In *ACM/IEEE-CS Joint Conference on Digital Libraries (JCDL)*, 2017.
- [4] Thomas Wilmering, Kevin Page, György Fazekas, Simon Dixon, and Sean Bechhofer. Automating annotation of media with linked data workflows. In *Proceedings of the 24th International Conference on World Wide Web Companion, WWW '15 Companion*, pages 737–738, Republic and Canton of Geneva, Switzerland, 2015. International World Wide Web Conferences Steering Committee.
- [5] Hannes Kulovits, Michael Kraxner, Markus Plangg, Christoph Becker, and Sean Bechhofer. Open preservation data: Controlled vocabularies and ontologies for preservation ecosystems. In *iPres, 10th International Conference on Preservation of Digital Objects*, 2013.
- [6] Sean Bechhofer Barbara Sierman, Catherine Jones and Gry Elstrøm. Preservation policy levels in scape. In *iPres, 10th International Conference on Preservation of Digital Objects*, 2013.

- [7] Nor Azlinayati Abdul Manaf, Sean Bechhofer, and Robert Stevens. The Current State of SKOS Vocabularies on the Web. In *Proceedings of the 9th Extended Semantic Web Conference, ESWC 2012, Heraklion, Crete, Greece, May 27-31, 2012*, volume 7295 of *LNCS*, pages 270–284. Springer, May 2012.
- [8] Sean Bechhofer, John Ainsworth, Jiten Bhagat, Iain Buchan, Philip Couch, Don Cruickshank, David De Roure, Mark Delderfield, Ian Dunlop, Matthew Gamble, Carole Goble, Danus Michaelides, Paolo Missier, Stuart Owen, David Newman, and Shoaib Sufi. Why Linked Data is Not Enough for Scientists. In *Sixth IEEE e-Science conference (e-Science 2010)*. IEEE, December 2010.
- [9] David De Roure, Carole Goble, Sergejs Aleksejevs, Sean Bechhofer, Jiten Bhagat, Don Cruickshank, Paul Fisher, N. Kollara, Danus Michaelides, Paolo Missier, David Newman, M. Ramsden, Marco Roos, Katy Wolstencroft, E. Zaluska, and Jun Zhao. The Evolution of myExperiment. In *IEEE International Conference on eScience*, pages 153–160, Los Alamitos, CA, USA, December 2010. IEEE Computer Society.
- [10] Paolo Missier, Katy Wolstencroft, Franck Tanoh, Peter Li, Sean Bechhofer, Khalid Belhajjame, Steve Petifer, and Carole A. Goble. Functional units: Abstractions for web service annotations. In *SERVICES: 6th World Congress on Services, SERVICES 2010, Miami, Florida, USA, July 5-10, 2010*, pages 306–313. IEEE Computer Society, 2010.
- [11] S. Bechhofer, D. De Roure, M. Gamble, C. Goble, and I. Buchan. Research objects: Towards exchange and reuse of digital knowledge. In *The Future of the Web for Collaborative Science (FWCS 2010), Workshop at WWW2010, Raleigh NC, 2010*.
- [12] D. Newman, S. Bechhofer, and D. De Roure. myExperiment: An ontology for e-Research. In *Semantic Web Applications in Scientific Discourse, Workshop at ISWC 2009, 2009*.
- [13] Darren Lunn, Simon Harper, and Sean Bechhofer. Combining SADle and AxsJAX to improve the accessibility of web content. In David Sloan, Chieko Asakawa, and Hironobu Takagi, editors, *W4A*, ACM International Conference Proceeding Series, pages 75–78. ACM, 2009.
- [14] Simon Jupp, Sean Bechhofer, and Robert Stevens. A flexible API and editor for SKOS. In *Proceedings of the 6th European Semantic Web Conference (ESWC), Heraklion, Crete*, volume 5554 of *Lecture Notes in Computer Science*, pages 506–520. Springer, 2009.
- [15] David De Roure, Carole Goble, Sergejs Aleksejevs, Sean Bechhofer, Jiten Bhagat, Don Cruickshank, Danus Michaelides, and David Newman. The myExperiment Open Repository for Scientific Workflows. In *4th International Conference on Open Repositories, Atlanta, Georgia, May 18th–21st, 2009*.
- [16] Iain Buchan, Shoaib Sufi, Sarah Thew, Ian Dunlop, Urara Hiroeh, Dexter Canoy, Georgina Moulton, John Ainsworth, Angela Dale, Sean Bechhofer, and Carole Goble. Obesity e-Lab: Connecting Social Science via Research Objects. In *2009 International Conference on e-Social Science, Cologne, Germany, 2009*.
- [17] Mark Birkin, Rob Allan, Sean Bechhofer, Iain Buchan, June Finch, Carole Goble, Andy Hudson-Smith, Paul Lambert, Rob Procter, David de Roure, and Richard Sinnott. The Elements of a Computational Infrastructure for Social Simulation. In *UK eScience All Hands Meeting (AHM2009), 2009*.
- [18] Eleni Michailidou, Simon Harper, and Sean Bechhofer. Investigating Sighted Users' Browsing Behaviour to Assist Web Accessibility. In *Proceedings of ASSETS 2008, 10th International ACM SIGACCESS Conference on Computers and Accessibility, 2008*.
- [19] Eleni Michailidou, Simon Harper, and Sean Bechhofer. Visual Complexity and Aesthetic Perception of Web pages. In *Proceedings of SIGDOC 2008, 26th ACM International Conference on Design of Communication, September 2008*.
- [20] Darren Lunn, Simon Harper, and Sean Bechhofer. A User Evaluation of the SADle Transcoder. In *Proceedings of ASSETS 2008, 10th International ACM SIGACCESS Conference on Computers and Accessibility, 2008*.
- [21] Oscar Corcho, Pinar Alper, Paolo Missier, Sean Bechhofer, and Carole Goble. Grid Metadata Management: requirements and architecture. In *8th ACM/IEEE International Conference on Grid Computing (GRID 2007), Austin, Texas, September 2007*.

- [22] Yeliz Yesilada, Sean Bechhofer, and Bernard Horan. Personalised Dynamic Links on the Web. In *SMAP2006: 1st International Workshop on Semantic Media Adaptation and Personalization*, pages 7–12, Dec 2006.
- [23] S. Harper, S. Bechhofer, and D. Lunn. Taming the Inaccessible Web. In *Proceedings of SIGDOC, 24th International Conference on Design of Communication.*, pages 64–69, New York, NY, USA, 2006. ACM Press.
- [24] Sean Bechhofer, Simon Harper, and Darren Lunn. SADLe: Semantic Annotation for Accessibility. In I. Cruz, S. Decker, D. Allemang, C. Preist, D. Schwabe, P. Mika, M. Uschold, and L. Aroyo, editors, *Proceedings of ISWC2006, the Fifth International Semantic Web Conference*, volume 4273 of *Lecture Notes in Computer Science*, pages 101–115. Springer, November 2006.
- [25] Sean Bechhofer, Yeliz Yesilada, Bernard Horan, and Carole Goble. Knowledge-Driven Hyperlinks: Linking in the Wild. In Vincent Wade, Helen Ashman, and Barry Smyth, editors, *Proceedings of AH2006: Adaptive Hypermedia and Adaptive Web-Based Systems*, volume 4018 of *Lecture Notes in Computer Science*, pages 1–10, 2006.
- [26] Sean Bechhofer, Ian Horrocks, and Daniele Turi. The OWL Instance Store: System Description. In *Proceedings of CADE-20, Conference on Automated Deduction*, volume 3632 of *Lecture Notes in Computer Science*. Springer, July 2005.
- [27] S.K. Bechhofer, R.D Stevens, and P.W. Lord. Ontology Driven Dynamic Linking of Biology Resources. In Russ B. Altman, A. Keith Dunker, Lawrence Hunter, Tiffany A. Jung, and Teri E. Klein, editors, *Pacific Symposium on Biocomputing (PSB) 2005*, pages 79–90. World Scientific, 2005.
- [28] Sean Bechhofer and Jeremy J. Carroll. Parsing OWL DL: Trees or Triples? In *Proceedings of the World Wide Web Conference, WWW2004*, pages 266–275. ACM Press, 2004.
- [29] Sean Bechhofer and Raphael Volz. Patching Syntax in OWL Ontologies. In Sheila A. McIlraith, Dimitris Plexousakis, and Frank van Harmelen, editors, *2nd International Semantic Web Conference, ISWC*, volume 3928 of *Lecture Notes in Computer Science*. Springer, November 2004.
- [30] Dmitry Tsarkov, Alexandre Riazanov, Sean Bechhofer, and Ian Horrocks. Using Vampire to Reason with OWL. In Sheila A. McIlraith, Dimitris Plexousakis, and Frank van Harmelen, editors, *2nd International Semantic Web Conference, ISWC*, volume 3928 of *Lecture Notes in Computer Science*, pages 471–485. Springer, November 2004.
- [31] Phillip Lord, Sean Bechhofer, Mark Wilkinson, Gary Schiltz, Damian Gessler, Carole Goble, Lincoln Stei, and Duncan Hull. Applying Semantic Web Services to Bioinformatics: Experiences gained, Lessons learnt. In Sheila A. McIlraith, Dimitris Plexousakis, and Frank van Harmelen, editors, *2nd International Semantic Web Conference, ISWC*, volume 3928 of *Lecture Notes in Computer Science*. Springer, November 2004.
- [32] Jun Zhao, Carole Goble, Robert Stevens, and Sean Bechhofer. Semantically Linking and Browsing Provenance Logs for E-science. In *Semantics of a Networked World: Semantics for Grid Databases, First International IFIP Conference, ICSNW 2004*, volume 3226 of *LNCS*. Springer, 2004.
- [33] Sean Bechhofer, Raphael Volz, and Phillip Lord. Cooking the Semantic Web with the OWL API. In Dieter Fensel, Katia Sycara, and John Mylopoulos, editors, *2nd International Semantic Web Conference, ISWC*, volume 2870 of *Lecture Notes in Computer Science*. Springer, October 2003.
- [34] Michael Uschold, Peter Clark, Fred Dickey, Casey Fung, Sonia Smith, Stephen Uzcakaj, Michael Wilke, Sean Bechhofer, and Ian Horrocks. A Semantic Infosphere. In Dieter Fensel, Katia Sycara, and John Mylopoulos, editors, *2nd International Semantic Web Conference, ISWC*, volume 2870 of *Lecture Notes in Computer Science*. Springer, October 2003.
- [35] Sean Bechhofer, Leslie Carr, Carole Goble, Simon Kampa, and Timothy Miles-Board. The Semantics of Semantic Annotation. In *ODBASE: First International Conference on Ontologies, DataBases, and Applications of Semantics for Large Scale Information Systems*, volume 2519 of *LNCS*, pages 1152–1167. Springer, October 2002.

- [36] Sean Bechhofer, Carole Goble, and Ian Horrocks. DAML+OIL is not enough. In *SWWS-1, Semantic Web working symposium*, Jul/Aug 2001.
- [37] Sean Bechhofer, Ian Horrocks, Carole Goble, and Robert Stevens. OilEd: a Reason-able Ontology Editor for the Semantic Web. In *Proceedings of KI2001, Joint German/Austrian conference on Artificial Intelligence*, volume 2174 of *LNAI*, pages 396–408. Springer, Sep 2001.
- [38] Leslie Carr, Sean Bechhofer, Carole Goble, and Wendy Hall. Conceptual Linking: Ontology-based Open Hypermedia. In *WWW10, Tenth World Wide Web Conference*, pages 334–342, May 2001.
- [39] Carole Goble, Sean Bechhofer, Leslie Carr, David De Roure, and Wendy Hall. Conceptual Open Hypermedia = The Semantic Web? In *SemWeb2001, The Second International Workshop on the Semantic Web*, May 2001.
- [40] Sean Bechhofer, Nick Drummond, and Carole Goble. Supporting Public Browsing of an Art Gallery Collections Database. In *Proceedings of the 11th International Conference and Workshop on Database and Expert Systems Applications DEXA 2000*, volume 1873 of *LNCS*, pages 879–888. Springer, September 2000.
- [41] Sean Bechhofer and Carole Goble. Classification Based Navigation and Retrieval for Picture Archives. In *IFIP WG2.6 Conference on Data Semantics, DS8*, January 1999.
- [42] Norman Paton, Robert Stevens, Patricia Baker, Carole Goble, Sean Bechhofer, and Andy Brass. Query Processing in the TAMBIS Bioinformatics Source Integration System. In *Proc. 11th Int. Conf. on Scientific and Statistical Database Management (SSDBM)*, pages 138–147. IEEE Press, 1999.
- [43] Patricia G. Baker, Andy Brass, Sean Bechhofer, Carole Goble, Norman Paton, and Robert Stevens. TAMBIS: Transparent Access to Multiple Bioinformatics Information Sources. An Overview. In *Proceedings of the Sixth International Conference on Intelligent Systems for Molecular Biology, ISMB98*, 1998.
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- [45] Carole Goble, Christian Haul, and Sean Bechhofer. Describing and Classifying Multimedia using the Description Logic GRAIL. In *SPIE Conference on Storage and Retrieval of Still Image and Video IV*, pages 132–143, 1996.
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Conference Contributions, Other

- [1] T. Wilmering, G. Fazekas, S. Dixon, K. Page, and S. Bechhofer. Towards High Level Feature Extraction from Large Live Music Recording Archives. In *International Conference on Machine Learning (ICML), Machine Learning for Music Discovery Workshop*, Lille, France, July 2015.
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- [3] Khalid Belhajjame, Oscar Corcho, Daniel Garijo, Jun Zhao, Paolo Missier, David R. Newman, Raul Palma, Sean Bechhofer, Esteban Garcia Cuesta, Jose Manuel Gomez-Perez, Graham Klyne, Kevin Page, Marco Roos, José Enrique Ruiz, Stian Soiland-Reyes, Lourdes Verdes-Montenegro, David De Roure, and Carole Goble. Workflow-Centric Research Objects: A First Class Citizen in the Scholarly Discourse. In *SEPUBLICA: Future of scholarly communication in the Semantic Web, Workshop at ESWC 2012*, 2012.
- [4] Carole Goble, David De Roure, and Sean Bechhofer. Accelerating scientists' knowledge turns. In *3rd International Joint Conference on Knowledge Discovery, Knowledge Engineering and Knowledge Management*, LNCS. Springer, 2012.
- [5] Nor Azlinayati Abdul Manaf, Sean Bechhofer, and Robert Stevens. Common Modelling Slips in SKOS Vocabularies. In *Proceedings of OWL: Experiences and Directions Workshop 2012, Heraklion, Crete, Greece, May 27-28, 2012*, volume 849 of *CEUR Workshop Proceedings*. CEUR-WS.org, May 2012.
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- [21] Sean Bechhofer and Carole Goble. Thesaurus Construction through Knowledge Representation. *Data and Knowledge Engineering*, 37:25–45, 2001.
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Professional Journal Papers

Popular Journal Papers

- [1] Carole Goble and Sean Bechhofer. OntoGrid: A Semantic Grid Reference Architecture. *CT-Watch Quarterly*, 1(4), November 2005. <http://www.ctwatch.org/quarterly/articles/2005/11/ontogrid-a-semantic-grid-reference-architecture/>.
- [2] Carole Goble, Robert Stevens, and Sean Bechhofer. The Semantic Web and Knowledge Grids. *Drug Discovery Today: Technologies*, 2(3):225–233, 2005. <http://www.sciencedirect.com/dd4/journal/17406749>.

Official Reports

Review Articles

Review of Single Academic Books

Other Publications: Research

- [1] Sean Bechhofer and Jeremy J. Carroll. Parsing OWL DL: Trees or Triples? Technical Report HPL-2003-267, HP Laboratories, January 2004.
- [2] Sean Bechhofer. OWL Web Ontology Language Parsing OWL in RDF/XML. W3C Working Group Note, World Wide Web Consortium, January 2004. <http://www.w3.org/TR/owl-parsing>.
- [3] Sean Bechhofer, Jeen Broekstra, Stefan Decker, Michael Erdmann, Dieter Fensel, Carole Goble, Frank van Harmelen, Ian Horrocks, Michel Klein, Deborah McGuinness, Enrico Motta, Peter Patel-Schneider, Steffen Staab, and Rudi Studer. An informal description of Standard Oil and Instance OIL. <http://www.ontoknowledge.org/oil>, 2000.

Other Publications: Research Equivalent

Other Media: Research

Other Media: Research Equivalent

Standards Documents

- [1] Alistair Miles and Sean Bechhofer. SKOS Simple Knowledge Organization System Reference. W3C Recommendation, World Wide Web Consortium, 2009.

C2. Other research achievement

I was involved in the development of the OIL language, and served as a participant in W3C's WebOnt Working Group, responsible for the definition of the Web Ontology Language OWL (a W3C Recommendation since February 2004). I joined the Working Group approximately half way through the process, but made substantial contributions to the standardisation activity, contributing an appendix to the OWL Reference document,

making significant contributions to the OWL Test Cases and supplying other supporting documentation including a Working Group Note. I was also responsible for the development of one of the first conforming OWL parsers, an activity crucial to the success of the standardisation process.

I participated in W3C's Semantic Web Deployment Working Group. This group produced recommendations for the representation of thesauri and controlled vocabularies through the definition of SKOS: Simple Knowledge Organisation System. I was an editor of the SKOS Reference document.

I was invited to give a keynote talk at the Extended Semantic Web Conference (ESWC 2010) in Crete, July 2010. The talk was on SKOS.

I was invited to give a plenary talk about work on Research Objects at the CERN Workshop on Innovations in Scholarly Communication (OAI7) in Geneva in June 2011.

I served as Program Co-Chair at the European Semantic Web Conference (ESWC) in 2008. I have also served on a number of Conference and Workshop Program Committees.

I have also acted as a reviewer for conferences and academic journals including ACM transactions on the Web, JoDI, IEEE Intelligent Systems, The Journal of Web Semantics, The Journal of Logic Language and Information, ODBASE2004, ECAI 2000, ECAI 2002, ISWC 2002/03, WISE 2002, DCW2002, ICWE2003, IJCAI2003, and Description Logic workshops.

C3. Creative or innovative work

C4. Supervision of research students

Lefteris Tatakis Co-supervision with Carole Goble. "Data Visualisation and the Fidelity of its Representation". Awarded MRes.

Darren Lunn Co-supervision with Simon Harper. Darren's thesis "Towards Behaviour-driven Transcoding of Web Content Through an Analysis of User Coping Strategies" was examined in November 2009 and passed (with minor corrections). He graduated in July 2010. The thesis investigated the use of Semantic Web technologies to support transcoding of web pages in order to increase accessibility and the use of coping strategies.

Eleni Michailidou Co-supervision with Simon Harper). Eleni is working on models of visual complexity of web pages. Her thesis "VICRAM: Visual Complexity Rankings and Accessibility Metrics" was examined in March 2010 and passed (with corrections). Eleni graduated in December 2010.

Azlinayati Manaf Co-supervision with Robert Stevens. Yati is investigated the relationships between OWL and SKOS as representation languages. Awarded MPhil.

Ravinder Singh Co-supervision with Suzanne Embury. Originally registered as a PhD student, in 2009 Ravinder decided to discontinue and write his work on investigating semantic annotation of web services as an MPhil thesis.

Aziz Khan I co-supervised Aziz Khan with Ian Horrocks. Aziz was working on semantic annotation. Unfortunately, Aziz suspended due to ill-health in 2006 and withdrew from study in 2008.

C5. Organisation and promotion of research

I have been involved in the following projects as an investigator.

FISH.Link (PI)

The FISH.Link project was a JISC funded project in the Managing Research Data strand. FISH.Link is a collaboration with the Freshwater Biological Association, Kings College London and Queen Mary College University

of London. The project aims to investigate the use of linked data publication of data in fresh water science. FISH.Link runs from August 2010 to July 2011

Fishdelish (CI)

Fishdelish is a JISC funded project that aims to expose significant parts of the FishBase resource as Linked Data. Fish delish ran from June 2010 to March 2011

SCAPE (PI)

SCAPE (Scalable Preservation Environments) was an EU Collaborative Project (No. 270137) under FP7-ICT-2009-6. SCAPE enhanced the state of the art of digital preservation in three ways: by developing infrastructure and tools for scalable preservation actions; by providing a framework for automated, quality-assured preservation workflows and by integrating these components with a policy-based preservation planning and watch system. It built on existing Manchester products such as Taverna, myExperiment and BioCatalogue.

Wf4Ever (CI)

Wf4Ever was an EU STREP. The project provided methods and tools required to ensure the long-term preservation of scientific workflows in order to support the scientific discovery process and the development of new scientific assets.

myGrid (CI)

A Platform for e-Biology Renewal. Platform grant to continue the work of the myGrid consortium. I was a CI on the grant, which was awarded in November 2008 (\$1.1M).

myExperiment (CI)

The myExperiment Repository Enhancement was a JISC funded project to further develop myExperiment's functionality and provide integration with institutional repositories. The project ran from April 2009 to March 2011.

NeISS

NeISS (National e-Infrastructure for Social Simulation) is a JISC funded project that provided a platform for simulation tools used by social scientists, public and private sector policy makers. NeISS draws on Taverna and myExperiment. NeISS ran from April 2009 to March 2012.

KnowledgeWeb

I was Research Area Manager for the EU Network of Excellence KnowledgeWeb (EU FP6-507482) in 2006 and 2007. This involved co-ordination and management of the six Research workpackages of the Network, in particular overseeing preparation for the successful final review of the network. KnowledgeWeb was a large European network, with the activity in the workpackages spread across a number of European partners.

COHSE

Since the completion of the EPSRC grant funding COHSE (EPSRC GR/M75426), I have fostered co-operation with Sun Microsystems, who were involved as users on the original project. This has resulted in three research grants from Sun for which I played the role of Principal Investigator. The grants were to the value of \$30,000 (2003–2004), \$30,000 (2004–2005) and \$47,000 (2006–2007).

OntoGrid (CI)

I was a co-investigator on OntoGrid (EU FP6-511513), an EU 6th Framework STREP concerned with Semantic Grid – the application of semantic technology to Grid. OntoGrid was a 36 month, €2.6M project spread across eight partners, four academic, four commercial. OntoGrid is seen as a key leader in research into the application of Semantic Web technology to facilitate Grid computing, and Manchester are the partners responsible for the Technical Management of the project.

I attended a number of EU concertation events and meetings as a representative of OntoGrid.

Previous Grants

While a Research Fellow, I had significant input into the production of a number of successful grant proposals. Although not an investigator, I was named as a researcher on these grants.

- COHSE (EPSRC GR/M75426)
- STARCH (EPSRC R/L71216)
- WonderWeb (EU IST-2001-33052)

Successful Applications

- RInO (CI): Reasoning Infrastructure for Ontologies and Instances. This work covered development of architectures, tools and APIs to support the use of Description Logic reasoning in ontology construction. The proposal was lead by Ian Horrocks, while I was a co-investigator along with two other colleagues from the IMG. The grant was funded in December 2006 and moved to Oxford with Ian.
- myGrid (CI): A Platform for e-Biology Renewal. Platform grant to continue the work of the myGrid consortium. I was a CI on the grant, which was awarded in November 2008 (\$1.1M).
- Fish.LINK (PI): JISC project in Managing Research Data stream. Joint Project with FBA and Kings College, London on Linked Data generation for Freshwater biology.
- FishDelish (CI): JISC project in Managing Research Data stream. Project concerned with Linked Data publication of the Fishbase database.
- HELIO (CI): The Heliophysics Integrated Observatory. Collaborative Project proposal to FP7 INFRA-2008-1.2.2: Scientific Data Infrastructure. Started June 2009 (FP7-238969).
- myExperiment Enhancement (CI). Grant to continue the work of myExperiment and integration with repositories. Funded under JISC Information Environment Programme 2009-11. Started April 1, 2009.
- SCAPE (PI): Scalable Preservation Environments. EU Collaborative Project concerned with long term digital preservation of large-scale and heterogeneous collections of digital objects. (FP7-270137)
- Wf4Ever (CI): EU STREP concerned with preservations of scientific workflows in data intensive science.

Other Applications

Grant Applications as a PI:

- SADie: Structural Semantics for Accessibility and Device Independence. EPSRC proposal submitted July 2006. This work proposes the use of explicit semantics to describe the structure and content of web resources and facilitate access to information for visually-impaired users. This tied together strands of interest in Semantic Web technology, Hypermedia and Accessibility – key themes within the Information Management Group's research lines. Simon Harper of the Information Management Group was a co-investigator.

The grant received good reviews with all referees rating the proposal as Good and Should Proceed, but was not funded.

Grant Applications as a CI:

- Integrated Knowledge Centre for Semantic and Knowledge Services, EPSRC Outline Proposal. PI: Alan Rector, University of Manchester.
- The V-Lab Project: Beyond automated analysis – collaborative semantic reasoning and in silico research over video content. PI: David Shotton, University of Oxford.
- WebSpace4LS: Integrated Web Space for Life Sciences. Collaborative Project proposal to FP7 INFRA-2008-1.2.2: Scientific Data Infrastructure. September 2008.
- Dataneum: Data-centric Semantics-based Infrastructure for e-Science. Data-centric Semantics-based Infrastructure for e-Science. September 2008.
- owl.cs: Web resources for OWL. Submitted to JISC RI call, April 2009.
- Ouranos. Semantic Knowledge Management, Sustainability and Food. Integrated Project Proposal to ICT Call 5: FP7-ICT-2009-5. October 2009
- Octopus. Open Collaborative Platform for a Pan-European Service Marketplace. STREP proposal to ICT Call 5: FP7-ICT-2009-5. October 2009

C6. Professional advisory or consultancy work

C7. Clinical responsibilities

C8. Service as an external examiner or as a referee (eg for a learned journal or for a research proposal)

In 2009, I acted as external examiner for a PhD thesis from the University of Southampton. Afraz Jaffri: *URI Identity Management for the Semantic Web: The Consistent Reference Service*.

In 2009, I acted as external examiner for a PhD thesis from the Open University. Michele Pasin: *Ontological Requirements for Supporting Smart Navigation of Philosophical Resources*.

In 2006, I acted as an external examiner for an MSc thesis from Rhodes University, South Africa. Russell Andrew Cloran: *Trust on the Semantic Web*.

I have acted as a reviewer for ACM Transactions on the Web, JoDI, IEEE Intelligent Systems, The Journal of Web Semantics and The Journal of Logic Language and Information.

C9. The holding of an office in, or the discharge of major responsibilities for, a learned society or professional body

C10. Other public service in a professional capacity (eg service by invitation as expert on advisory international, national, regional or local bodies)

C11. Academic invitations received for the presentation of external lectures and papers, contributions to conference proceedings etc

- [1] Sean Bechhofer. Research objects: Towards exchange and reuse of digital knowledge. Invited Talk at CERN Workshop on Innovations in Scholarly Communication (OAI7), Geneva, Switzerland, June 2011.
- [2] Sean Bechhofer. SKOS: Past, Present and Future. Invited Talk at the Extended Semantic Web Conference (ESWC 2010), 2010.
- [3] Sean Bechhofer. Ontology Languages for the Semantic Web. Invited Tutorial on the Semantic Web. International Semantic Web Conference (ISWC2008), Karlsruhe, Germany, November 2008.
- [4] Sean Bechhofer. Semantics for the Web. Seminar, National Institute for Excellence in the Creative Industries, University of Bangor., April 2008.
- [5] Sean Bechhofer. Ontology Languages for the Semantic Web. Invited Tutorial on the Semantic Web. International Semantic Web Conference (ISWC2007), Busan, South Korea, November 2007.
- [6] Sean Bechhofer. The Semantic Web and Web 3.0. Invited Talk, Search, What Next? Manchester Digital Half-Day Conference, October 2007.
- [7] Sean Bechhofer. Ontology Languages for the Semantic Web. Fifth Summer School on Ontological Engineering and the Semantic Web (SSSW'07), Cercedilla, Spain, July 2007.
- [8] Sean Bechhofer. Programming to the OWL API. Invited Tutorial, Semantic Technologies Conference, San Jose California, May 2007.
- [9] Sean Bechhofer. OWL: An Ontology Language for the Semantic Web. Invited Tutorial, Center for Computation & Technology, Louisiana State University, Baton Rouge, Louisiana, USA, August 2006.
- [10] Sean Bechhofer. Ontology Languages for the Semantic Web. Fourth Summer School on Ontological Engineering and the Semantic Web (SSSW'06), Cercedilla, Spain, July 2006.
- [11] Sean Bechhofer. The Semantic Web. Semantic Grid 101. Tutorial at Global Grid Forum, Athens, February 2006.
- [12] Sean Bechhofer. The Semantic Web. Invited Seminar for the British Computer Society, North Wales and Chester Branch, February 2006.
- [13] Sean Bechhofer. Semantic Web: Marvel or Marketing? Departmental Seminar, Department of Computer Science, University of Liverpool, January 2006.
- [14] Sean Bechhofer. Walking in a Semantic Wonderland: An Overview of the Semantic Web. Seminar for Manchester Computing and ESNW, December 2005.
- [15] Sean Bechhofer. Ontology Languages for the Semantic Web. Third Summer School on Ontological Engineering and the Semantic Web (SSSW'05), Cercedilla, Spain, July 2005.
- [16] Sean Bechhofer. OWL: An Ontology Language for the Semantic Web. Invited Presentation, Workshop on Model Driven Architecture: Foundations and Applications (MDAFA 2004), Linköping, Sweden, June 10-11, 2004, 2004.

- [17] Sean Bechhofer. OWL: An Ontology Language for the Semantic Web. Invited Presentation, Workshop on Semantics and Services, Telematica Institute, Enschede, Netherlands, March 2003., March 2003.
- [18] Sean Bechhofer. Reasoning: Who gives a hoot? Invited presentation at SOFG, workshop on Standards and Ontologies for Functional Genomics, Wellcome Trust Genome Campus, Cambridge, UK, November 2002., November 2002.
- [19] Sean Bechhofer. Semantics in the Semantic Web: Is the Domain/Discipline Important? Panel Presentation. ODBASE: First International Conference on Ontologies, Databases, and Applications of Semantics for Large Scale Information Systems, Irvine, California, 2002., 2002.
- [20] Sean Bechhofer. OIL: The Ontology Inference Layer. NKOS Workshop on Networked Knowledge Organization Systems at the ACM Conference Digital Libraries, San Antonio, June 7, 2000., 2000.
- [21] Sean Bechhofer. OIL: The Ontology Inference Layer. Invited Panel Presentation. Special NKOS Workshop on Networked Knowledge Organization Systems. European Conference on Digital Libraries, Lisbon, Sept 18–20, 2000. Springer-Verlag LNCS 1923., September 2000.

In addition to the talks above, I have given seminars at the University of Cardiff, the University of York, Manchester Metropolitan University and the University of Waikato, New Zealand and have made visits to Universities and Institutes including the University of Sheffield, and CWI in Amsterdam.

C12. Other conferences and seminars attended

In the course of the last ten years I have attended a number of international conferences and workshops, including:

- Foundations of the Web for Collaborative Science, FWCS, Raleigh, NC, 2010.
- Linking Open Data on the Web (LDOW 2010), Raleigh, NC, 2010.
- Extended Semantic Web Conference (ESWC 2010), Crete, 2010.
- International Semantic Web Conference (ISWC2009), Washington, DC 2008
- OWLEd: OWL Experiences and Directions Workshop, Washington, DC, 2009
- International Semantic Web Conference (ISWC2008), Karlsruhe, 2008
- OWLEd: OWL Experiences and Directions Workshop, Karlsruhe, 2008
- European Semantic Web Conference (ESWC2008), Tenerife, 2008
- International Semantic Web Conference (ISWC2007), Busan, South Korea, 2007
- Semantic Technologies Conference, San Jose, California, 2007
- European Semantic Web Conference (ESWC2007), Innsbruck, 2007
- OWLEd: OWL Experiences and Directions Workshop, Innsbruck, 2007
- World Wide Web Conference (WWW2007), Banff, Canada, 2007
- International Semantic Web Conference (ISWC2006), Athens, Georgia, 2006
- OWLEd: OWL Experiences and Directions Workshop, Athens, 2006
- World Wide Web Conference (WW2006). Edinburgh, 2006
- Global Grid Forum (GGF16), Athens, Greece, 2006

- International Semantic Web Conference (ISWC2005), Galway, Ireland.
- OWLEd: OWL Experiences and Directions Workshop, Galway, 2005
- Pacific Symposium on Bioinformatics (PSB 2005), Hawaii, USA.
- International Semantic Web Conference (ISWC2004), Hiroshima, Japan.
- World Wide Web Conference (WWW2004). New York, USA
- Workshop on Model Driven Architecture: Foundations and Applications (MDAFA 2004), Linköping, Sweden.
- International Semantic Web Conference (ISWC2003). Sanibel Island, USA.
- Description Logic Workshop (DL03). Rome, Italy.
- World Wide Web Conference (WWW2003) Budapest, Hungary.
- Workshop on Semantics and Services, Telematica Institute, Enschede, Netherlands, March 2003
- International Semantic Web Conference (ISWC2002). Sardinia, Italy
- Description Logic Workshop (DL02). Toulouse, France.
- SOFG, workshop on Standards and Ontologies for Functional Genomics, Wellcome Trust Genome Campus, Cambridge, UK, November 2002
- ODBASE 2002: First International Conference on Ontologies, Databases, and Applications of Semantics for Large Scale Information Systems, Irvine, California.
- KI2001, Joint German/Austrian conference on Artificial Intelligence, Vienna, September, 2001. *
- First International Conference on Knowledge Capture (K-CAP) 2001, Victoria, Canada.
- Workshop on Knowledge Markup and Semantic Annotation, K-CAP 2001, Victoria B.C, October 2001
- ACM Hypertext Conference (HT00). San Antonio, Texas.
- European Digital Libraries Conference (ECDL00). Lisbon, Portugal.
- 11th International Conference and Workshop on Database and Expert Systems Applications DEXA 2000. September 4–8, 2000 London - Greenwich, United Kingdom.
- ACM Hypertext Conference (HT99). Darmstadt.
- European Digital Libraries Conference (ECDL99). Paris, France.
- UIDIS Workshop on User Interfaces to Data Intensive Systems, Edinburgh, 1999
- IFIP WG2.6 Conference on Data Semantics, DS8 , Rotorua, New Zealand, Jan 1999
- Searching for Information: Artificial Intelligence and Information Retrieval Approaches, IEE Symposium, Glasgow, November 1999
- Description Logic Workshop (DL97). Gif sur Yvette, France.
- STEP 97, 8th International Workshop on Software Technology and Engineering Practice, London, 1997
- European Conference on Artificial Intelligence (ECAI) 1996, Budapest
- Third International Conference on Conceptual Structures (ICCS95), Santa Cruz, USA
- Knowledge Use Retrieval and Storage for Efficiency (KRUSE95), Santa Cruz, USA.

- KI-94 Advances in Artificial Intelligence. 18th German Annual Conference on Artificial Intelligence. Saarbrücken, Germany.
- KI-94 Workshop on the comparison between Conceptual Graphs and Terminological Logics for Representing Medicine, Saarbrücken,
- TOOLS 8, Technology of Object-Oriented Languages and Systems, Santa Barbara, CA, 1992.

C13. Major academic visits and collaborations, in the UK and abroad

C14. Statement on research

My research activities fall under the broad umbrella of developing semantic web middleware and infrastructure. Within this, I have focused on a number of particular areas.

Aggregations for Publication This was a strand of work pursued within the context of other “e-laboratory” projects within the IMG. The work focused on the definition of “Research Objects”, principled aggregations of web resources that are intended to support reuse of scientific experiments, results and publications. The work relates to efforts such as Linked Open Data and makes use of semantic technologies in order to provide the structured metadata required to support reusability.

Knowledge Representation Languages. The languages needed for representing knowledge, particularly in a web setting. This can range from heavy-weight logic based languages such as the W3C’s Web Ontology Language recommendation OWL, through to lightweight representations such as SKOS and RDF Schema. I have been active in the important standardisation work relating to OWL and this continues with active participation in the standardisation of SKOS (a representation for Simple Knowledge Organisation Systems such as thesauri or controlled vocabularies). Heavyweight, formal Knowledge Representation schemes bring much benefit, but are not the only way of representing and presenting knowledge. We are seeing an increase in interest in less formal representations, driven by the rise of “Web 2.0”, with social networking and folksonomies providing alternative, lightweight representations. Although these representations lack a well-defined semantics, they can still prove of benefit in applications. Investigating the interface between such lightweight representations and the heavyweight approaches exemplified by OWL is interesting territory. Striking a balance between light- and the heavy-weight depends very much on the context and task being undertaken.

Tools and Infrastructure. Languages like OWL need tools and applications to support users. Standard APIs and protocols can facilitate interoperability between applications, which is of particular importance when “semantics” are being exchanged. I developed a portfolio of projects, and a reputation, in tool development, reflected in work on the KnowledgeWeb and OntoGrid projects, RINO and the continued development of tools such as the OWL API, the DIG protocols and tools like Protege. In 2007 I was invited to give a OWL API tutorial to the Semantic Technologies Industry Symposium in San Jose.

Applications of Semantic Technology. Conceptual Open Hypermedia makes use of conceptual models (ontologies or controlled vocabularies) to support the construction of hyperlinks. This is reflected in my work on COHSE - a Semantic Hypermedia system which is one of the first Semantic Web applications. COHSE is a technological pillar of the EU Sealife project. Explicit representations of semantics of documents can also enhance support for accessibility – the SADIE programme of work developed these ideas for opening up the Web to the visually impaired and mobile users.

D: Administration

D1. General responsibility for an area of departmental or Faculty academic activity

I am Director of Teaching and Learning in the School of Computer Science.

D2. General responsibility for some other area of departmental or Faculty activity

I am a member of the School's Applicant Visit Day team. This involves hosting Visit Days, giving presentations about the School and talking to prospective students and their parents. With declining student applications, attracting quality students to study in the School is an increasingly important task.

In the past I was responsible for overseeing web content strategy within the School of Computer Science.

D3. Service as an official at departmental, Faculty or University level, and service on Departmental, Faculty or University Committees

As Director of Teaching and Learning I serve on the Faculty of Science and Engineering Teaching and Learning Leadership Team. I also serve on the School Leadership Team, Duties Allocation Committee and School Promotions Committee.

As Year Tutor I have served on the School's Undergraduate Committee and Mitigating Circumstances committees for the past seven years.

I was a member of the Steering Group for the John Rylands Research Institute between 2015 and 2017.

D4. Service on external bodies as a University representative, and on local, national or international committees of learned and professional societies in a personal capacity

D5. Administrative work undertaken as part of a National Health Service clinical contract

D6. Statement on administration