
Stefan Ruger

- Advanced Study in Learning and Teaching (Imperial College London, 2002)
- Dr rer nat (Informatik, Technische Universitat Berlin, 1996)
- Diplom-Physiker (Freie Universitat Berlin, 1990)

Before joining The Open University as Professor of Knowledge Media in 2006:

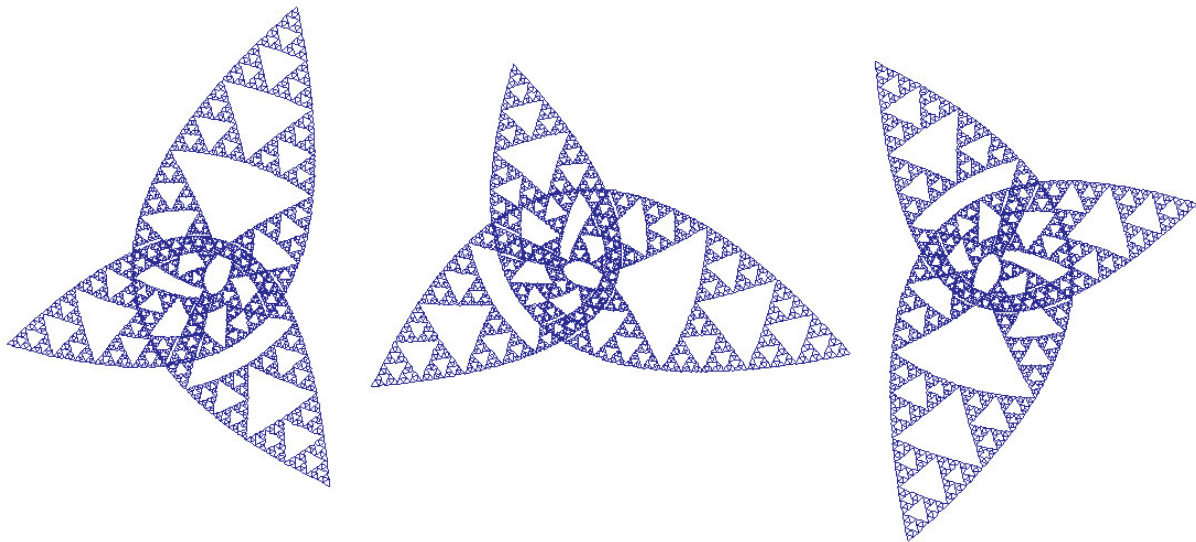
7 years at Imperial College London as Reader in Multimedia and Information Systems,
Lecturer, Research Lecturer and EPSRC Advanced Research Fellow

2 years postdoctoral researcher, Imperial College London

5 years teaching and research assistant, Technische Universitat Berlin

2 years industry experience

Download current CV from <http://kmi.open.ac.uk/people/stefan/cv.html>



Contents

Stefan Rüger — CV May 2017	1
Publications and dissemination	2
• Research area	2
• Co-authors	2
• Publication strategy	2
• Publications in Multimedia Information Retrieval (2002–)	3
• Publications in Neural Networks (1995–2001) and Physics	13
• Keynotes, invited presentations and panels	14
• Tutorials at conferences, summer schools and research institutes	16
• Invited departmental or research group talks	17
Research and academic service	18
• Research funding	18
• Research outcomes	19
• Research supervision	21
• Esteem indicators	22
• Collaborations	25
• Research visits	27
• Membership in professional bodies	27
Learning and teaching	28
• Teaching philosophy	28
• Undergraduate and master student supervision	29
• Teaching assignments	29
• Prize-winning student projects under my supervision	30
• Formal training	31
Management and administrative activities	32
• Administration	32
• Committee membership	32
• Professorial or administrative appointment panels	32
Profession and industrial practice	33
• Patent	33
• Prize-winning demonstrators at industrial expositions	33
• Industrial visits	33
• Formal training	33

<i>Academic titles</i>	Dr rer nat (equivalent to PhD), Diplom-Physiker (equivalent to MSc)
<i>Affiliation 1</i>	<i>Professor of Knowledge Media</i> Knowledge Media Institute, The Open University Walton Hall, Milton Keynes MK7 6AA, UK tel +44 (1908) 655 945, fax +44 (1908) 653 169 s.rueger@open.ac.uk, http://kmi.open.ac.uk/people/stefan
<i>Affiliation 2</i>	<i>Honorary Professor (2009–2020)</i> , Department of Computer Science, University of Waikato , Hamilton, New Zealand
<i>Studies</i>	2001–2002 Advanced Study in Learning and Teaching, Imperial College London 1995–1996 Computer Science, Technische Universitat Berlin 1983–1990 Physics & Mathematics, Freie Universitat Berlin
<i>Degrees</i>	2002 Certificate of Advanced Study in Learning and Teaching, postgraduate qualification from Imperial College London 1996 Dr rer nat (PhD), <i>with distinction</i> , Doctoral thesis “On the theory of artificial neural networks”, Technische Universitat Berlin 1990 Degree in Physics (equiv MSc), thesis “Scattering theory for particles with braid group statistics”, Freie Universitat Berlin
<i>Career</i>	2006– Knowledge Media Institute, the OU: Professor of Knowledge Media - Led Multimedia and Information Systems area 2006–2009 also <i>Visiting Principal Research Fellow</i> , Imperial College London 1999–2006 Computing, Imperial College London: Reader in Multimedia and Information Systems (2005–2006); <i>Lecturer</i> (2002–2005); <i>Research Lecturer</i> (2000–2002); also <i>EPSRC Advanced Research Fellow</i> (1999–2004) - Coordinated the Multimedia Information Retrieval team - Researched, led and managed research projects - Trained and supervised research staff and PhD students - Taught and supervised post- and undergraduate students 1997–1999 <i>Postdoctoral Researcher</i> , Imperial College London , Data Mining group - Researched data mining and statistics, information retrieval and text mining, clustering and classification, feature extraction - Applied text mining technology at Fujitsu Ltd of Japan - Taught and supervised post- and undergraduate students 1992–1997 <i>Teaching and Research Assistant</i> , Technische Universitat Berlin Computer Science Department : researched artificial neural networks, graphical models & Boltzmann machines and convex optimisation; lectured computer science students in UNIX and Neural Networks 1990–1992 <i>Programmer and Consultant</i> , Berlin: devised and implemented programming languages for petrochemical process networks; developed multiple-workplace EDP programs for beverages wholesale companies 1987–1990 <i>Tutor</i> (student teaching assistant), Freie Universitat Berlin , Computer lab of the Physics Department ; tutored students, supervised practicals and developed new teaching experiments

Publications and dissemination

Research area

My research has evolved from theoretical models in mathematical physics [164] via theory of neural networks, machine learning and data mining [159,161–163,165–171] to addressing underlying research questions in the area of Multimedia Information Retrieval [5–13,38–51,53–137,148,157] including software demonstrators [138–142] and a patent [143].

The main area of my research in the previous decade has been Multimedia Information Retrieval utilising methods from machine learning, computer vision and artificial intelligence. Applications of this research are used in multimedia search engines, eg, for video and image resource discovery. Multimedia Information Retrieval is a research area that is well supported by scientific journals and international conferences. It is of significant interest to industries such as broadcasters, libraries, telecommunication; galleries and museums of the Digital Heritage sector; and the academic data-centred research in Sciences and Humanities.

Co-authors

Group members or students/interns working with the group (36): Stanislav Bagley [Cristi Barladeanu](#) [Evan Brown](#) [Paul Browne](#) [Matthew Carey](#) [Richard Cooper](#) [Shyamala Doraisamy](#) [Julien Gevrey](#) [Daniel Heesch](#) [Peter Howarth](#) [Rui Hu](#) [Qiang Huang](#) [Zi “Helen” Huang](#) [Trung Huynh](#) [Anuj Kumar](#) [Partha Lal](#) [Suzanne Little](#) [Haiming Liu](#) [Ainhoa Llorente](#) [Xiang Ma](#) [João Magalhães](#) [Alexander May](#) [Simon Overell](#) [Marcus Pickering](#) [Adam Rae](#) [Edward Schofield](#) [Shalini Sewraz](#) [Suhail Shaik](#) [Dawei Song](#) [Anton Weinberger](#) [Sebastian Wittchen](#) [Lawrence Wong](#) [Alexei Yavlinsky](#) [Srđan Zagorac](#) [Georgios Zervas](#) [Jianhan Zhu](#)

External co-authors and co-editors (124): [Eugene Agichtein](#) [Prashant Aparajeya](#) [Peter Kwok Tat Au](#) [Sachi Arafat](#) [Leif Azzopardi](#) [David Bainbridge](#) [Lawrence Bergman](#) [Eric Blanco](#) [Pavel Braslavski](#) [Toby Breckon](#) [Peter Bruza](#) [David Bull](#) [Steve Cafferty](#) [Paul Cairns](#) [Matthew Carey](#) [Bejal Chawda](#) [Fabio Ciravegna](#) [Simon Colton](#) [Brock Craft](#) [Hamish Cunningham](#) [Thierry Declerck](#) [Ling-Yu Duan](#) [Emanuele Di Buccio](#) [Abdigani Diriye](#) [Peter Dunker](#) [Marc Eisenstadt](#) [Richard Everson](#) [João Faria](#) [Rebecca Ferguson](#) [Frederic Fol Leymarie](#) [Klaus Fredenhagen](#) [Ingo Frommholz](#) [Matthias Gaberdiel](#) [Mickaël Gardoni](#) [Susan Gauch](#) [Arnab Ghoshal](#) [Alexandre Gonçalves](#) [Michael Granitzer](#) [Marcin Grzegorzec](#) [Yike Guo](#) [Cathal Gurrin](#) [Martin Halvey](#) [Allan Hanbury](#) [Miki Haseyama](#) [Alex Hauptmann](#) [Yulan He](#) [Yuexian Hou](#) [Xiangji “Jimmy” Huang](#) [Zi “Helen” Huang](#) [Álvaro Huertas-Rosero](#) [Benoit Huet](#) [Ichiro Ide](#) [Rui Jesus](#) [Joemon Jose](#) [M Kankanhalli](#) [Kazuto Kamikura](#) [Jaap Kamps](#) [Gabriella Kazai](#) [Thomas Kessler](#) [Sanjeev Khudanpur](#) [Irwin King](#) [Jihie Kim](#) [Udo Kruschwitz](#) [Sergei Kuznetsov](#) [Mounia Lalmas](#) [Xue Li](#) [Chenghua Lin](#) [Hanna Lukashevich](#) [Andrew MacFarlane](#) [João Magalhães](#) [R Manmatha](#) [Jean Martinet](#) [Yosi Mass](#) [Philip McParlane](#) [Massimo Melucci](#) [Bamshad Mobasher](#) [Enrico Motta](#) [Paul Mulholland](#) [Frank Nack](#) [Naoko Nitta](#) [Stefanie Nowak](#) [Robert O’Callaghan](#) [Arnfried Ossen](#) [Roberto Pacheco](#) [Vesna Petresin](#) [Benjamin Piwowarski](#) [Vijay Raghavan](#) [Stephen Robertson](#) [Thomas Roelleke](#) [Massimo Romanelli](#) [Jeffrey Rydberg-Cox](#) [Mark Sanderson](#) [Shin’ichi Satoh](#) [Ilya Segalovich](#) [Thomas von Schroeter](#) [Jie Shao](#) [Heng Tao Shen](#) [Milad Shokouhi](#) [Stefan Siersdorfer](#) [David Sinclair](#) [Michael Sintek](#) [Sergej Sizov](#) [Dawei Song](#) [Markus Stolze](#) [Takahira Yamaguchi](#) [Anastasios Tombros](#) [Pedro Torres](#) [Theodora Tsirikla](#) [Victoria Uren](#) [Keith van Rijsbergen](#) [Roelof van Zwol](#) [Lara Vetter](#) [Johannes Vogel](#) [Jun Wang](#) [Alistair Willis](#) [Wolf-Dieter Woitdt](#) [Li-Qun Xu](#) [Nobuyuki Yagi](#) [Emine Yilmaz](#) [Peng Zhang](#) [Yanqing Zhang](#) [Xiaofang Zhou](#) [Jianhan Zhu](#) [Guido Zuccon](#)

Publication strategy

In line with most Computer Scientists I prefer to publish through reputable conferences. They often have very low acceptance rates and are events where trends are set. I publish in journals

where a series of results can be consolidated into a larger piece of work. Some of my work was carried out and published in *evaluation conferences*, which pose a substantial challenge on shared data, and provide independent, human-based evaluation of the submitted results. In that respect evaluation conferences play an important role, because they assess cutting-edge research ideas through metric evaluation and they further the field in general through shared datasets.

Publications in Multimedia Information Retrieval (2002–)

Articles *about* my work

1. S Cafferty, S Little, S Rüger and J Vogel: *Search Engines of the Future: The Pharos project*. iTunes U video, 6:15 min, The Open University, 2009
2. S Rüger: *More than a thousand words*. Notes from my inaugural lecture on 4 Jun 2008 at The Open University. In the UK, an inaugural lecture is a way of informing colleagues in the university, and the public, about current research directions and, more importantly, the vision that the new professor strives to realise. Despite its name, an inaugural lecture is traditionally given a good while after the chair has been awarded. A video replay of my inaugural lecture in quicktime format is available at <http://stadium.open.ac.uk/stadia/preview.php?s=1&whichevent=1167>.
3. S Rüger and A Rae: *A picture is worth a thousand words*. Enterprise Information cover feature, *Inside Knowledge*, 11(8), pp 29–31, 2008
4. M Boyd: Multimedia feature: *Data’s rising tide*. *Newsline* (28), pp 16–17, Winter 2003

Monograph

5. S Rüger: *Multimedia information retrieval*. Lecture notes in the series Synthesis Lectures on Information Concepts, Retrieval, and Services. Morgan and Claypool Publishers, 171 pages, 74 figures, 4 videos, 1 soundfile, ISBN paper 978-1-60845-097-8, ISBN ebook 978-1-60845-098-5, 2010. DOI: 10.2200/S00244ED1V01Y200912ICR010

Book chapters

6. S Rüger: *Multimedia resource discovery*. In M Melucci and R Baeza-Yates (eds): *Advanced Topics in Information Retrieval*. Springer, pp 157–186, 2011 (updated re-print of [10] with excerpts from [5]). DOI: 10.1007/978-3-642-20946-8_7
7. H Liu, S Little and S Rüger: *Multimedia: behaviour, interfaces and interaction*. In I Ruthven and D Kelly (eds): *Interactive information seeking, behaviour and retrieval*, Facet Publishing, pp 221–234, 2011
8. S Little, E Brown and S Rüger: *Multimedia: information representation and access*. In I Ruthven and D Kelly (eds): *Interactive information seeking, behaviour and retrieval*, Facet Publishing, pp 235–254, 2011
9. S Little, A Llorente and S Rüger: *An overview of evaluation campaigns in multimedia retrieval*. In H Müller, P Clough, T Deselaers and B Caputo (Eds): *ImageCLEF — Experimental Evaluation in Visual Information Retrieval*. Springer, pp 507–525, 2010. DOI: 10.1007/978-3-642-15181-1_27
10. S Rüger: *Multimedia resource discovery*. In A Göker and J Davies (eds): *Information Retrieval: Searching in the 21st Century*, pp 39–62, Wiley, ISBN 978-0-470-02762-2, 2009
11. J Magalhães and S Rüger: *Semantic multimedia information analysis for retrieval applications*. In A Ahmad and I Khalil (eds): *Multimedia Transcoding in Mobile and Wireless Networks*, pp 47–65, IGI Global, ISBN 978-1-59904-985-4, 2009, reprint of [13]
12. D Heesch and S Rüger: *Interaction models and relevance feedback in image retrieval*. In Y-J Zhang (ed): *Semantic-Based Visual Information Retrieval*, pp 160–186, IRM Press, ISBN 1-59904-370-X, 2007

13. J Magalhães and S Rüger: *Semantic multimedia information analysis for retrieval applications*. In Y-J Zhang (ed): *Semantic-Based Visual Information Retrieval*, pp 334–354, IRM Press, ISBN 1-59904-370-X, 2007

Proceedings as editor

14. M Kankanhalli, S Rüger, R Manmatha, J Jose, K van Rijsbergen: *Proceedings of the ACM International Conference on Multimedia Retrieval*. ACM, April 2014. ISBN 978-1-4503-2782-4
15. V Raghavan, S Rüger, T Yamaguchi and Y Zhang: *Proceedings of the IEEE/WIC/ACM International Conference on Web Intelligence*. IEEE, Nov 2013. DOI: 10.1109/WI-IAT.2013.235
16. P Serdyukov, P Braslavski, S Kuznetsov, J Kamps, S Rüger, E Agichtein, I Segalovich and E Yilmaz (eds): *Advances in Information Retrieval*. 35th European Conference on IR Research, ECIR 2013, Moscow, Russia, Springer LNCS 7814, 894 pages, Mar 2013. DOI: 10.1007/978-3-642-36973-5
17. T Declerck, M Granitzer, M Grzegorzec, M Romanelli, S Rüger and M Sintek (eds): *Semantic Multimedia*. 5th International Conference on Semantic and Digital Media Technologies, SAMT 2010, Saarbrücken, Germany, Springer LNCS 6725, 195 pages, 2011. DOI: 10.1007/978-3-642-23017-2
18. X Huang, I King, V Raghavan and S Rüger (eds): *Proceedings of the IEEE/WIC/ACM International Conference on Web Intelligence*. IEEE, 492 pages, Sep 2010. DOI: 10.1109/WI-IAT.2010.353
19. H Cunningham, A Hanbury and S Rüger (eds): *Advances in Multidisciplinary Retrieval*. 1st Information Retrieval Facility Conference, IRFC 2010, Vienna, Austria, Springer LNCS 6107, 175 pages, May 2010. DOI: 10.1007/978-3-642-13084-7
20. C Gurrin, Y He, G Kazai, U Kruschwitz, S Little, T Roelleke, S Rüger and K van Rijsbergen (eds): *Advances in Information Retrieval*. 32nd European Conference on IR Research, ECIR 2010, Milton Keynes, UK, Springer LNCS 5993, 692 pages, Mar 2010. DOI: 10.1007/978-3-642-12275-0
21. L Azzopardi, G Kazai, S Robertson, S Rüger, M Shokouhi, D Song and E Yilmaz (eds): *Advances in Information Retrieval Theory*. 2nd International Conference on the Theory of Information Retrieval, ICTIR 2009, Cambridge, UK, Springer LNCS 5766, 404 pages, ISBN 3-642-04416-6, Sep 2009. DOI: 10.1007/978-3-642-04417-5
22. M Lalmas, A MacFarlane, S Rüger, A Tombros, T Tsikrika, A Yavlinsky (eds): *Advances in Information Retrieval*. 28th European Conference on IR Research, ECIR 2006, London, UK, Springer LNCS 3936, 601 pages, ISBN 3-540-33347-9, Apr 2006. DOI: 10.1007/11735106

Special issues as editor

23. S Satoh, L-Y Duan, M Haseyama, B Huet, I Ide, K Kamikura, J Martinet, F Nack, N Nitta, S Rüger and N Yagi (eds): *Multimedia Content Analysis*. Special section in the *ITE Transactions on Media Technology and Applications*, 1(2), 2013
24. M Grzegorzec, M Granitzer, S Rüger, M Sintek, T Declerck and M Romanelli (eds): *Trends in Semantic and Digital Media Technologies*. Special issue *Multimedia Tools and Applications*, 62(2), 2013. ISSN: 1380-7501 (Print) 1573-7721 (Online)
25. S Rüger, V Raghavan, I King and X Huang (eds): *Advances in Web Intelligence*. Special issue *Neurocomputing*, 76(1), 98 pages, 2012
26. L Azzopardi, D Song, G Kazai, S Robertson, S Rüger, M Shokouhi and E Yilmaz (eds): *Second International Conference on the Theory of Information Retrieval*. Special Issue *Information Retrieval Journal*, 14(1), pp 1–106, 2011

Supervised PhD theses

27. Adam Rae: *Exploiting social networks for recommendation in online image sharing systems*, 2011
28. Ainhoa Llorente: *Semantics and Statistics for Automated Image Annotation*, 2010
29. Haiming Liu: *A Framework for Understanding User Interaction with Content-based Image Retrieval: Model, Interface and Users*, 2010
30. Simon Overell: *Geographic Information Retrieval: Classification, Disambiguation and Modelling*, 2009
31. João Magalhães: *Statistical models for semantic-multimedia information retrieval*, 2008
32. Alexei Yavlinsky: *Image indexing and retrieval using automated annotation*, 2007
33. Peter Howarth: *Discovering images: features, similarities and subspaces*, 2007
34. Edward Schofield: *Fitting maximum entropy models on large sample spaces*, 2006
35. Daniel Heesch: *NN^k networks for browsing and searching*, 2005
36. Shyamala Doraisamy: *Polyphonic music retrieval: the n-gram approach*, 2004
37. Marcus Pickering: *Video retrieval and summarisation*, 2004

Journal articles

38. S Little, R Ferguson and S Rüger: [Finding and reusing learning materials with multimedia similarity search and social networks](#). *Technology, Pedagogy and Education*, 21(2), 255–271, 2012. DOI: 10.1080/1475939X.2012.698378
39. J Magalhães and S Rüger: [Using manual and automated annotations to search images by semantic similarity](#). *Multimedia Tools and Applications*, 56(1), pp 109–129, 2012. DOI: 10.1007/s11042-010-0558-3
40. S Overell and S Rüger: [View of the world according to Wikipedia: are we all little Steinbergs?](#) *International Journal of Computational Science*, 2(3), pp 193–197, 2011. DOI: 10.1016/j.jocs.2011.05.006
41. C Lin, Y He, R Everson and S Rüger: [Weakly-supervised Joint Sentiment-Topic Detection from Text](#). *IEEE Transactions on Knowledge and Data Engineering*, 24(6), pp 1134–1145, 2012. DOI: 10.1109/TKDE.2011.48
42. J Magalhães and S Rüger: [An information-theoretic framework for semantic-multimedia retrieval](#). *Transactions on Information Systems*, 28(4), pp 19:1–32, 2010. DOI: 10.1145/1852102.1852105
43. J Zhu, X Huang, D Song and S Rüger: [Integrating multiple document features in language models for expert finding](#). *Knowledge and Information Systems*, 23(1), pp 29–54, 2010. DOI: 10.1007/s10115-009-0202-6
44. J Zhu, D Song and S Rüger: [Integrating multiple windows and document features for expert finding](#). *Journal of the American Society for Information Science and Technology*, 60(4), pp 694–715, 2009. DOI: 10.1002/asi.21012
45. J Zhu, D Song, M Eisenstadt, C Barladeanu and S Rüger: [DYNIQX: A novel meta-search engine for the web](#). *International Journal of Information Studies*, 1(1), pp 2–27, 2009
46. S Overell and S Rüger: [Using co-occurrence models for placename disambiguation](#). *International Journal of Geographical Information Science*, 22(3), pp 265–287, 2008. DOI: 10.1080/13658810701626236
47. P Howarth and S Rüger: [Robust texture features for still-image retrieval](#). *IEE Proc on Vision, Image and Signal Processing*, 152(6), pp 868–874, 2005. DOI: 10.1049/ip-vis:20045185

48. M Gardoni, E Blanco and S R uger: *MICA-Graph: a tool for managing text and sketches during design processes*. *Journal of Intelligent Manufacturing*, 16, pp 395–405, 2005. DOI: 10.1007/s10845-005-1653-6
49. M Pickering and S R uger: *Evaluation of key-frame based retrieval techniques for video*. *Computer Vision and Image Understanding*, 92:2, pp 217–235, 2003. DOI: 10.1016/j.cviu.2003.06.002
50. S Doraisamy and S R uger: *Robust polyphonic music retrieval with n-grams*. *Journal of Intelligent Information Systems*, 21:1, pp 53–70, 2003. DOI: 10.1023/A:1023553801115

Refereed conference articles

51. T Huynh, Y He, A Willis and S R uger: *Adverse drug reaction classification with deep neural networks*. Int'l Conf on Computational Linguistics (COLING, Osaka, Japan), ISBN: 978-4-87974-702-0, pp 877–887, Dec 2016.
52. P Aparajeya, V Petresin, F Fol Leymarie and S R uger: *Movement description and gesture recognition for live media arts*. European Conf on Visual Media Production (CVMP, London, UK), ACM ISBN: 978-1-4503-3560-7, Nov 2015. DOI: <http://dx.doi.org/10.1145/2824840.2824861>
53. T Huynh, Y He and S R uger: *Learning Higher-Level Features with Convolutional Restricted Boltzmann Machines for Sentiment Analysis*. European Conf on Information Retrieval (ECIR, Vienna, Austria), Springer LNCS 9022, pp 447–452, Mar 2015. DOI: 10.1007/978-3-319-16354-3_49
54. S Little, R Ferguson and S R uger: *Navigating and discovering educational materials through visual similarity search*. World Conf on Educational Multimedia, Hypermedia & Telecommunications (ED-MEDIA, Lisbon, Portugal), 9 pages, Jun 2011.
55. H Liu, P Mulholland, D Song, V Uren and S R uger: *An information foraging theory based user study of an adaptive user interaction framework for content-based image retrieval*. Int'l Conf on MultiMedia Modeling (MMM, Taipei, Taiwan), Part II, Springer LNCS 6524, pp 241–251, Jan 2011. DOI: 10.1007/978-3-642-17829-0_23
56. D Song, M Lalmas, K van Rijsbergen, I Frommholz, B Piwowarski, J Wang, P Zhang, G Zuccon, P Bruza, S Arafat, L Azzopardi, E Di Buccio,   Huertas-Rosero, Y Hou, M Melucci and S R uger: *How quantum theory is developing the field of Information Retrieval*. AAAI-Fall 2010 Symposium on Quantum Informatics for Cognitive, Social, and Semantic Processes (QI, Washington DC), pp 105–108, Nov 2010
57. H Liu, P Mulholland, D Song, V Uren and S R uger: *Applying information foraging theory for understanding user interaction with content-based image retrieval*. Information Interaction in Context Symposium (IiX, New Brunswick, NJ), pp 135–144, Aug 2010. DOI: 10.1145/1840784.1840805
58. S Nowak, A Llorente, E Motta and S R uger: *The effect of semantic relatedness measures on multi-label classification evaluation*. ACM Int'l Conf on Image and Video Retrieval (ACM CIVR, Xi'an, China), pp 303–310, Jul 2010. DOI: 10.1145/1816041.1816086
59. A Llorente, R Manmatha and S R uger: *Image retrieval using Markov random fields and global image features*. ACM Int'l Conf on Image and Video Retrieval (ACM CIVR, Xi'an, China), pp 243–250, Jul 2010. DOI: 10.1145/1816041.1816078
60. S Nowak, H Lukashovich, P Dunker and S R uger: *Performance measures for multilabel evaluation: a case study in the area of image classification*. ACM Int'l Conf on Multimedia Information Retrieval (ACM MIR, Philadelphia, PA), pp 33–44, Mar 2010. DOI: 10.1145/1743384.1743398

61. S Nowak and S Ruger: *How reliable are annotations via crowdsourcing? A study about inter-annotator agreement for multi-label image annotation*. ACM Int’l Conf on Multimedia Information Retrieval (ACM MIR, Philadelphia, PA), pp 557–566, Mar 2010. DOI: 10.1145/1743384.1743478
62. A Llorente, E Motta and S Ruger: *Exploring the semantics behind a collection to improve automated image annotation*. Multilingual Information Access Evaluation II. Multimedia Experiments, Springer LNCS 6242, pp 307–314, 2010. DOI: 10.1007/978-3-642-15751-6_40
63. A Llorente, E Motta and S Ruger: *Image annotation refinement using web-based keyword correlation*. Int’l Conf on Semantic and Digital Media Technologies (SAMT, Graz, Austria), Springer LNCS 5887, pp 188–191, Dec 2009. DOI: 10.1007/978-3-642-10543-2_22
64. H Liu, S Zagorac, V Uren, D Song and S Ruger: *Enabling effective user interactions in content-based image retrieval*. Asia Information Retrieval Symposium (AIRS, Sapporo, Hokkaido, Japan), Springer LNCS 5839, pp 265–276, Oct 2009. DOI: 10.1007/978-3-642-04769-5_23
65. H Liu, V Uren, D Song and S Ruger: *A four-factor user interaction model for content-based image retrieval*. Int’l Conf on the Theory of Information Retrieval (ICTIR, Cambridge, UK), Springer LNCS 5766, pp 297–304, Sep 2009. DOI: 10.1007/978-3-642-04417-5_29
66. Z Huang, H Shen, D Song, X Li and S Ruger: *Dimension-Specific Search for Multimedia Retrieval*. Int’l Conf on Database Systems for Advanced Applications (DASFAA, Brisbane, Australia), Springer LNCS 5463, pp 693–698, Apr 2009. DOI: 10.1007/978-3-642-00887-0_60
67. A Llorente and S Ruger: *Using second order statistics to enhance automated image annotation*. European Conf on Information Retrieval (ECIR, Toulouse, France), Springer LNCS 5478, pp 570–577, Mar 2009. DOI: 10.1007/978-3-642-00958-7_52
68. A Llorente, S Overell, H Liu, R Hu, A Rae, J Zhu, D Song and S Ruger: *Exploiting term co-occurrence for enhancing automated image annotation*. Evaluating Systems for Multilingual and Multimodal Information Access, Springer LNCS 5706, pp 632–639, 2009. DOI: 10.1007/978-3-642-04447-2_79
69. S Overell, A Rae, and S Ruger: *Geographic and textual data fusion in Forostar*. Evaluating Systems for Multilingual and Multimodal Information Access, Springer LNCS 5706, pp 838–842, 2009. DOI: 10.1007/978-3-642-04447-2_109
70. J Magalhaes, F Ciravegna and S Ruger: *Exploring multimedia in a keyword space*. ACM Int’l Multimedia Conf (ACM MM, Vancouver, Canada), pp 101–110, Oct 2008. DOI: 10.1145/1459359.1459374
71. Z Huang, H Shen, J Shao, S Ruger and X Zhou: *Locality condensation: a new dimensionality reduction method for Image Retrieval*. ACM Int’l Multimedia Conf (ACM MM, Vancouver, Canada), pp 219–228, Oct 2008. DOI: 10.1145/1459359.1459389
72. J Zhu, D Song, S Ruger and X Huang: *Modeling Document Features for Expert Finding*. Poster, ACM Int’l Conf on Information and Knowledge Management (CIKM, Napa Valley, CA), pp 1421–1422, Oct 2008. DOI: 10.1145/1458082.1458312
73. D Heesch and S Ruger: *Two step relevance feedback for semantic disambiguation in image retrieval*. Int’l Conf on Visual Information Systems (VISUAL, Salerno, Italy), Springer LNCS 5188, pp 204–215, Sep 2008. DOI: 10.1007/978-3-540-85891-1_23
74. J Zhu, D Song, M Eisenstadt, C Barladeanu and S Ruger: *DYNIQX: A novel meta-search engine for metadata based cross search*. IEEE Int’l Conf on the Application of Digital

- Information and Web Technologies (ICADIWT, Ostrava, Czech Republic), pp 204–209, Aug 2008. DOI: 10.1109/ICADIWT.2008.4664345
75. R Hu, S Rüger, D Song, H Liu and Z Huang: *Dissimilarity measures for content-based image retrieval*. IEEE Int'l Conf on Multimedia and Expo (ICME, Hanover, Germany), pp 1365–1368, Jun 2008. DOI: 10.1109/ICME.2008.4607697
 76. J Zhu, D Song and S Rüger: *Integrating document features for entity ranking*. Initiative for the Evaluation of XML Retrieval (INEX, Schloss Dagstuhl, Germany, Dec 2007), Focused access to XML documents, Springer LNCS 4862, pp 336–347, 2008. DOI: 10.1007/978-3-540-85902-4
 77. D Song, Q Huang, S Rüger and P Bruza: *Facilitating query decomposition in query language modeling by association rule mining using multiple sliding windows*. European Conf on Information Retrieval (ECIR, Glasgow, UK), Springer LNCS 4956, pp 334–345, Mar 2008. DOI: 10.1007/978-3-540-78646-7_31
 78. Q Huang, D Song and S Rüger: *Robust query-specific pseudo feedback document selection for query expansion*. European Conf on Information Retrieval (ECIR, Glasgow, UK), Springer LNCS 4956, pp 547–554 Mar 2008. DOI: 10.1007/978-3-540-78646-7_54
 79. H Liu, D Song, S Rüger, R Hu and V Uren: *Comparing dissimilarity measures for content-based image retrieval*. Asia Information Retrieval Symposium (AIRS, Harbin, China), Springer LNCS 4993, pp 44–50, Jan 2008. DOI: 10.1007/978-3-540-68636-1_5
 80. S Overell, J Magalhães and S Rüger: *GIR experiments with Forostar*. In Advances in Multilingual and Multimodal Information Retrieval (Budapest, Hungary, Aug 2007), Springer LNCS 5152, pp 856–863, 2008. DOI: 10.1007/978-3-540-85760-0_110
 81. Q Huang, D Song, S Rüger and P Bruza: *Learning and optimization of an Aspect Hidden Markov Model for query language model generation*. Int'l Conf on the Theory of Information Retrieval (ICTIR, Budapest, Hungary), Alma Mater Series, pp 157–164, ISSN 1587-2386, Oct 2007
 82. J Zhu, A Gonçalves, V Uren, E Motta, R Pacheco, D Song, S Rüger: *Community relation discovery by named entities*. Int'l Conf on Machine Learning and Cybernetics (ICMLC 2007, Hong Kong), vol 4, pp 1966–1973, Aug 2007. DOI: 10.1109/ICMLC.2007.4370469
 83. J Magalhães and S Rüger: *Information-theoretic semantic multimedia indexing*. ACM Int'l Conf on Image and Video Retrieval (CIVR, Amsterdam, The Netherlands), pp 619–626, Jul 2007, *best paper award*. DOI: <http://doi.acm.org/10.1145/1282280.1282368>
 84. Z Huang, H Shen, X Zhou, D Song and S Rüger: *Dimensionality reduction for dimension-specific search*. ACM Int'l Information Retrieval Conf (SIGIR, Amsterdam, The Netherlands), pp 849–850, Jul 2007. DOI: 10.1145/1277741.1277940
 85. J Magalhães and S Rüger: *High-dimensional visual vocabularies for image retrieval*. ACM Int'l Information Retrieval Conf (SIGIR, Amsterdam, The Netherlands), pp 815–816, Jul 2007. DOI: 10.1145/1277741.1277923
 86. A Yavlinsky and S Rüger: *Efficient re-indexing of automatically annotated image collections using keyword combination*. Multimedia Content Analysis, Management and Retrieval (SPIE, San Jose, CA), vol 6506, pp 08:1–6, Jan 2007. DOI: 10.1117/12.702913
 87. S Overell, J Magalhães and S Rüger: *Forostar: a system for GIR*. Evaluation of Multilingual and Multimodal Information Retrieval — 7th workshop of the Cross-Language Evaluation Forum (Alicante, Spain, Sep 2006), Springer LNCS 4730, pp 930–937, 2007. DOI: 10.1007/978-3-540-74999-8_119
 88. J Magalhães and S Rüger: *Logistic regression of semantic codebooks for semantic image retrieval*. Int'l Conf on Image and Video Retrieval (CIVR, Tempe, AZ), Springer LNCS 4071, pp 41–50, Jul 2006. DOI: 10.1007/11788034_5

89. B Chawda, B Craft, P Cairns, D Heesch and S R uger: *Do “attractive things work better”? An exploration of search tool visualisations*. HCI 2005 — The Bigger Picture (Edinburgh, UK), vol 2, pp 46–51, Sep 2005
90. J Magalh aes and S R uger: *Mining multimedia salient concepts for incremental information extraction*. ACM Int’l Information Retrieval Conf (SIGIR, Salvador, Brazil), pp 641–642, Aug 2005. DOI: 10.1145/1076034.1076168
91. D Heesch and S R uger: *Image browsing: semantic analysis of NN^k networks*. Int’l Conf on Image and Video Retrieval (CIVR, Singapore), Springer LNCS 3568, pp 609–618, Jul 2005. DOI: 10.1007/11526346_64
92. P Howarth and S R uger: *Trading precision for speed: localised similarity functions*. Int’l Conf on Image and Video Retrieval (CIVR, Singapore), Springer LNCS 3568, pp 415–424, Jul 2005. DOI: 10.1007/11526346_45
93. A Yavlinsky, E Schofield and S R uger: *Automated image annotation using global features and robust nonparametric density estimation*. Int’l Conf on Image and Video Retrieval (CIVR, Singapore), Springer LNCS 3568, pp 507–517, Jul 2005. DOI: 10.1007/11526346_54
94. P Howarth and S R uger: *Fractional distance measures for content-based image retrieval*. European Conf on Information Retrieval (ECIR, Santiago de Compostela, Spain), Springer LNCS 3408, pp 447–456, Mar 2005
95. S Doraisamy and S R uger: *A polyphonic retrieval system using n -grams*. Int’l Conf on Music Information Retrieval (ISMIR, Barcelona, Spain), pp 204–209, Oct 2004
96. J Rydberg-Cox, L Vetter, S R uger and D Heesch: *Approaching the problem of multilingual information retrieval and visualization in Greek and Latin and Old Norse texts*. European Conf on Digital Libraries (ECDL, Bath, UK), Springer LNCS 3232, pp 168–178, Sep 2004. DOI: 10.1007/b100389
97. D Heesch and S R uger: *Three interfaces for content-based access to image collections*. Int’l Conf on Image and Video Retrieval (CIVR, Dublin, Ireland), Springer LNCS 3115, pp 491–499, Jul 2004. DOI: 10.1007/b98923
98. P Howarth and S R uger: *Evaluation of texture features for content-based image retrieval*. Int’l Conf on Image and Video Retrieval (CIVR, Dublin, Ireland), Springer LNCS 3115, pp 326–334, Jul 2004. DOI: 10.1007/b98923
99. J Rydberg-Cox, L Vetter, S R uger and D Heesch: *Cross-lingual searching and visualization for Greek and Latin and Old Norse text*. Joint Conf on Digital Libraries (JCDL, Tucson, AZ), p 383, ISBN 1-58113-832-6, Jun 2004. DOI: 10.1145/996350.996449
100. A Yavlinsky, M Pickering, D Heesch and S R uger: *A comparative study of evidence combination strategies*. IEEE Int’l Conf on Acoustics, Speech, and Signal Processing (ICASSP, Montreal, Canada), vol iii, pp 1040–1043, May 2004. DOI: 10.1109/ICASSP.2004.1326726
101. D Heesch and S R uger: *NN^k networks for content-based image retrieval*. European Conf on Information Retrieval (ECIR, Sunderland, UK), Springer LNCS 2997, pp 253–266, Apr 2004. DOI: 10.1007/978-3-540-24752-4_19
102. S Doraisamy and S R uger: *Position indexing of adjacent and concurrent n -grams for polyphonic music retrieval*. Int’l Conf on Music Information Retrieval (ISMIR, Baltimore, MD), pp 227–228, ISBN 0-9746194-0-X, Oct 2003
103. M Carey, D Heesch and S R uger: *Info navigator: a visualization interface for document searching and browsing*. Int’l Conf on Distributed Multimedia Systems (DMS, Miami, FL), pp 23–28, ISBN 1-891706-13-6, Sep 2003

104. D Heesch, A Yavlinsky and S Rüger: *Performance comparison between different similarity models for CBIR with relevance feedback*. Int'l Conf on Image and Video Retrieval (CIVR, Urbana-Champaign, IL), Springer LNCS 2728, pp 456–466, Jul 2003. DOI: 10.1007/3-540-45113-7_45
105. M Pickering, L Wong and S Rüger: *ANSES: Summarisation of news video*. Int'l Conf on Image and Video Retrieval (CIVR, Urbana-Champaign, IL), Springer LNCS 2728, pp 425–434, Jul 2003. DOI: 10.1007/3-540-45113-7_42
106. D Heesch and S Rüger: *Relevance feedback for content-based image retrieval: what can three mouse clicks achieve?* European Conf on Information Retrieval Research (ECIR, Pisa, Italy), Springer LNCS 2633, pp 363–376, Apr 2003. DOI: 10.1007/3-540-36618-0_26
107. S Doraisamy and S Rüger: *A comparative and fault-tolerance study of the use of n-grams with polyphonic music*. Int'l Conf on Music Information Retrieval (ISMIR, Paris, France), pp 101–106, Oct 2002
108. M Pickering, S Rüger and D Sinclair: *Video retrieval by feature learning in key frames*. Challenges of Image and Video Retrieval (CIVR, London, UK), Springer LNCS 2383, pp 309–317, Jul 2002. DOI: 10.1007/3-540-45479-9_33
109. D Heesch and S Rüger: *Combining features for content-based sketch retrieval — a comparative evaluation of retrieval performance*. European Colloquium on Information Retrieval Research (ECIR, Glasgow, UK), Springer LNCS 2291, pp 41–52, Mar 2002. DOI: 10.1007/3-540-45886-7_3
110. S Doraisamy and S Rüger: *An approach towards a polyphonic music retrieval system*. Int'l Symposium of Music Information Retrieval (ISMIR, Bloomington, IN), pp 187–194, Oct 2001
111. T von Schroeter, S Doraisamy and S Rüger: *From raw polyphonic audio to locating recurring themes*. Int'l Symposium on Music Information Retrieval (ISMIR, Plymouth, MA), Oct 2000
112. P Au, M Carey, S Sewraz, Y Guo and S Rüger: *New paradigms in information visualization*. ACM Int'l Information Retrieval Conf (SIGIR, Athens, Greece), pp 307–309, ISBN 1-58113-226-3, Jul 2000. DOI: 10.1145/345508.345610
113. S Sewraz and S Rüger: *A visual information-retrieval navigator*. European Colloquium on Information Retrieval Research (ECIR, Cambridge, UK), pp 222–231, Apr 2000
114. G Zervas and S Rüger: *The curse of dimensionality and document clustering*. IEE Two-day Seminar. Searching for Information: Artificial Intelligence and Information Retrieval Approaches, pp 19/1–19/3, 1999. DOI: 10.1049/ic:19990899

Evaluation conference articles

115. S Zagorac, A Llorente, S Little, H Liu and S Rüger: *Automated Content Based Video Retrieval*. TREC Video Retrieval Evaluation (TRECVID, Gaithersburg, MD), pp 1–7, Nov 2009
116. A Llorente, S Zagorac, S Little, R Hu, A Kumar, S Shaik, X Ma and S Rüger: *Semantic video annotation using background knowledge and similarity-based video retrieval*. TREC Video Retrieval Evaluation (TRECVID, Gaithersburg, MD), pp 1–11, Nov 2008
117. J Zhu, D Song and S Rüger: *The Open University at TREC 2007 enterprise track*. Text Retrieval Conf (TREC, Gaithersburg, MD, Nov 2007), NIST 500-274, pp 1–4, 2008
118. J Zhu, D Song, S Rüger, M Eisenstadt and E Motta: *The Open University at TREC 2006 enterprise track expert search task*. Text Retrieval Conf (TREC, Gaithersburg, MD, Nov 2006), NIST 500-272, pp 1–5, 2007

119. A Ghoshal, S Khudanpur, J Magalhães, S Overell, A Yavlinsky and S Rüger: *Imperial College and Johns Hopkins at TRECVID*. TREC Video Retrieval Evaluation (TRECVID, Gaithersburg, MD), pp 1–10, Nov 2006
120. P Howarth, A Yavlinsky, D Heesch and S Rüger: *Medical image retrieval using texture, locality and colour*. Lecture Notes from the Cross Language Evaluation Forum 2004, Springer LNCS 3491, pp 740–749, 2005. DOI: 10.1007/11519645_72
121. R Jesus, J Magalhães, A Yavlinsky and S Rüger: *Imperial College at TRECVID*. TREC Video Retrieval Evaluation (TRECVID, Gaithersburg, MD), p 1–10, Nov 2005
122. D Heesch, P Howarth, J Magalhães, A May, M Pickering, A Yavlinsky and S Rüger: *Video retrieval using search and browsing*. TREC Video Retrieval Evaluation (TRECVID, Gaithersburg, MD), pp 1–11, Nov 2004
123. D Heesch, M Pickering, S Rüger and A Yavlinsky: *Video retrieval using search and browsing with key frames*. TREC Video Retrieval Evaluation (TRECVID, Gaithersburg, MD), pp 1–11, Nov 2003
124. M Pickering, D Heesch, R O’Callaghan, S Rüger and D Bull: *Video retrieval using global features in keyframes*. Text Retrieval Conf (TREC, Gaithersburg, MD, Nov 2002), NIST 500-251, pp 318–324, 2003
125. P Lal and S Rüger: *Extract-based summarization with simplification*. Workshop on Text Summarization (DUC, Philadelphia, PA), pp 90–96, Jul 2002
126. M Pickering and S Rüger: *Multi-timescale video shot-change detection*. Text Retrieval Conf (TREC, Gaithersburg, MD, Nov 2001), NIST 500-250, pp 275–278, 2002
127. J Gevrey and S Rüger: *Link-based approaches for text retrieval*. Text Retrieval Conf (TREC, Gaithersburg, MD, Nov 2001), NIST 500-250, pp 279–285, 2002
128. R Cooper and S Rüger: *A simple question answering system*. Text Retrieval Conf (TREC, Gaithersburg, MD, Nov 2000), NIST 500-249, pp 249–255, 2001
129. S Rüger: *Automatic query feedback using related words*. Text Retrieval Conf (TREC, Gaithersburg, MD, Nov 1999), NIST 500-246, pp 421–423, 2000

Refereed workshop papers

130. J Faria, S Bagley, S Rüger and T Breckon: *Challenges of Finding Aesthetically Pleasing Images*. IEEE Workshop on Image and Audio Analysis for Multimedia Interactive Services (WIAMIS, Paris, France), Apr 2013.
131. S Little and S Rüger: *Conservation of Effort in Feature Selection for Image Annotation*. IEEE Workshop on Multimedia Signals Processing (MMSP, Rio de Janeiro, Brazil), pp 414–419, Oct 2009. DOI: 10.1109/MMSP.2009.5293290
132. A Llorente and S Rüger: *Can a probabilistic image annotation system be improved using a co-occurrence approach?* SAMT Workshop on Cross-Media Information Analysis, Extraction and Management (Koblenz, Germany), pp 33–42, Dec 2008
133. P Torres, S Colton and S Rüger: *Experiments in example-based image filter retrieval*. SAMT Workshop on Cross-Media Information Analysis, Extraction and Management (Koblenz, Germany), pp 9–16, Dec 2008
134. S Overell and S Rüger: *Geographic co-occurrence as a tool for GIR*. CIKM workshop on Geographic Information Retrieval (Lisbon, Portugal), pp 71–76, Nov 2007. DOI: 10.1145/1316948.1316968
135. J Magalhães, S Overell and S Rüger: *A semantic vector space for query by image example*. ACM SIGIR workshop on Multimedia Information Retrieval (Amsterdam, The Netherlands), pp 11–16, Jul 2007

136. S Overell and S Rüger: *Identifying and grounding descriptions of places*. ACM SIGIR workshop on Geographic Information Retrieval (Seattle, WA), pp 14–16, Aug 2006
137. S Doraisamy and S Rüger: *Emphasizing the need for TREC-like collaboration for MIR evaluation*. ACM SIGIR workshop on the Evaluation of Music Information Retrieval Systems (Toronto, Canada), pp 90–96, Aug 2003

Refereed demonstration papers

138. A Diriye, S Zagorac, S Little and S Rüger: *NewsRoom: An Information-Seeking Support System for News Videos*. ACM Int'l Conf on Multimedia Information Retrieval (ACM MIR, Philadelphia, PA), pp 377–380, Mar 2010. DOI: 10.1145/1743384.1743445
139. D Heesch, A Yavlinsky and S Rüger: *NN^k networks and automated annotation for browsing large image collections from the world wide web*. ACM Int'l Multimedia Conf (ACM MM, Santa Barbara, CA), pp 493–494, Oct 2006. DOI: 10.1145/1180639.1180741
140. P Browne, S Rüger, L-Q Xu and D Heesch: *iBase: navigating digital library collections*. Int'l Conf on Image and Video Retrieval (CIVR, Tempe, AZ), Springer LNCS 4071, pp 510–513, Jul 2006. DOI: 10.1007/11788034_56
141. A Yavlinsky, D Heesch and S Rüger: *A large scale system for searching and browsing images from the world wide web*. Int'l Conf on Image and Video Retrieval (CIVR, Tempe, AZ), Springer LNCS 4071, pp 537–540, Jul 2006. DOI: 10.1007/11788034_63
142. D Heesch, M Pickering, P Howarth, A Yavlinsky and S Rüger: *Digital library access via image similarity search*. Joint Conf on Digital Libraries (JCDL, Tucson, AZ), p 412, Jun 2004. DOI: 10.1145/996350.996479

Patents

143. S Rüger and M Pickering: *Method for merging subtitles*. International patent, publication number WO 2006/038008 A1, 14 pages, 6 figures, Apr 2006

Invited journal/conference/workshop papers

144. M Halvey and P McParlane and J Jose and S Rüger and R Manmatha and M Kankanhalli and K van Rijsbergen: ICMR 2014: 4th ACM International Conference on Multimedia Retrieval. *SIGIR Forum* 49(1), 6 pages, 2015
145. S Rüger and J Jose: *ACM International Conference on Multimedia Retrieval (ICMR 2014)*, *IEEE MultiMedia* 21(3), p 72, 2014. DOI: 10.1109/MMUL.2014.38
146. M Grzegorzek, M Granitzer, S Rüger, M Sintek, T Declerck and M Romanelli: *Trends in semantic and digital media technologies, Multimedia tools and applications*, 62(2), pp 311–318, 2013. DOI: 10.1007/s11042-012-1106-0
147. S Rüger, V Raghavan, I King and X Huang: *Special issue on advances in web intelligence*. *Neurocomputing*, editorial, 76(1), pp 48–49, 2012. DOI: 10.1016/j.neucom.2011.07.006
148. S Rüger: *Knowledge discovery in the web: potential, automation and limits*. Int'l Conf on Knowledge Management and Knowledge Technologies (i-KNOW, Graz, Austria), pp 3:1–4, Sep 2011. DOI: 10.1145/2024288.2024292
149. L Azzopardi, D Song, G Kazai, S Robertson, S Rüger, M Shokouhi and E Yilmaz: *Introduction to special issue on the second international conference on the theory of Information Retrieval*. Special Issue *Information Retrieval Journal*, 14(1), pp 1–4, 2011. DOI: 10.1007/s10791-010-9142-8
150. C Gurrin, Y He, U Kruschwitz, S Little and S Rüger: ECIR 2010: 32nd European Conference on Information Retrieval Research. *SIGIR Forum*, 44(1), pp 2–18, 2010
151. H Cunningham, A Hanbury and S Rüger: *Scaling up high-value retrieval to medium-volume data*. Information Retrieval Facility Conf (IRFC 2010, Vienna, Austria), Springer LNCS 6107, pp 1–5, May 2010. DOI: 10.1007/978-3-642-13084-7_1

152. C Gurrin, Y He, G Kazai, U Kruschwitz, S Little, T Roelleke, S Ruger and K van Rijsbergen: *Recent developments in Information Retrieval*. European Conf on Information Retrieval (ECIR 2010, Milton Keynes, UK), Springer LNCS 5993, pp 1–10, Mar 2010. DOI: 10.1007/978-3-642-12275-0_1
153. L Bergman, J Kim, B Mobasher, S Ruger, S Siersdorfer, S Sizov and M Stolze: *International workshop on recommendation and collaboration (ReColl 2008)*. Int’l Conf on Intelligent User Interfaces (IUI 2008, Gran Canaria, Spain), p 439, Jan 2008. DOI: 10.1145/1378773.1378859
154. R van Zwol, S Ruger, M Sanderson and Y Mass: *Multimedia information retrieval: new challenges in audio visual search*. *SIGIR Forum*, 41(2), pp 77–82, 2007. DOI: 10.1145/1328964.1328978
155. M Lalmas, S Ruger, T Tsikrika, A Yavlinsky: *Progress in Information Retrieval*. European Conf on Information Retrieval (ECIR, London, UK). Springer LNCS 3936, pp 1–11, Apr 2006. DOI: 10.1007/11735106_1
156. R Manmatha, S Ruger and A Hauptmann: *Multimedia information retrieval: workshop report*. *SIGIR Forum*, 39(2), pp 40–41, 2005. DOI: 10.1145/1113343.1113352
157. D Bainbridge, P Browne, P Cairns, S Ruger and L-Q Xu: *Managing the growth of multimedia digital content*. *ERCIM News: special theme on Multimedia Informatics*, 62, pp 16–17, Jul 2005
158. S Ruger: *Putting the user in the loop: visual resource discovery*. Workshop on Adaptive Multimedia Retrieval (AMR, Glasgow, Jul 2005), Springer LNCS 3877, pp 1–18, 2006. DOI: 10.1007/11670834_1

Publications in Neural Networks (1995–2001) and Physics

Monograph on Neural Networks and book chapter on Physics

159. S Ruger: *Zur Theorie kunstlicher neuronaler Netze*. Verlag Harri Deutsch, Thun, Frankfurt/Main, 228 pages, 85 figures, ISBN 3-8171-1542-3, 1997
160. T Kessler, S Ruger and W-D Woitdt: *Receiving and interpreting orbital satellite data. A computer experiment for educational purposes*. H Staudenmaier (Ed): *Physics Experiments Using PCs. A Guide for Instructors and Students*, Chapter 12, Springer, Berlin, first edition 1993, second edition ISBN 3-54058801-9, 1995

Journal articles on Neural Networks and Physics

161. S Ruger: *A class of asymptotically stable algorithms for learning-rate adaptation*. *Algorithmica*, 22, pp 198–210, 1998. DOI: 10.1007/PL00013830
162. A Ossen and S Ruger: *Weight space analysis and forecast uncertainty*. *Journal of Forecasting*, 17, pp 471–480, 1998. DOI: 10.1002/(SICI)1099-131X(1998090)17:5/6<471::AID-FOR708>3.0.CO;2-U
163. S Ruger and A Ossen: *The metric structure of weight space*. *Neural Processing Letters*, 5(2), pp 63–71, 1997. DOI: 10.1023/A:1009657318698
164. K Fredenhagen, M Gaberdiel and S Ruger: *Scattering states of plektons (particles with braid group statistics) in 2+1 dimensional quantum field theory*. *Communications in Mathematical Physics*, 175, pp 319–335, 1996. DOI: 10.1007/BF02102411

Selected conference articles on Data Mining and Neural Networks

165. S Rüger: *Making stochastic networks deterministic*. Int'l Conf on Artificial Neural Networks (ICANN, Lausanne, Switzerland), Springer LNCS 1327, pp 355–360, Oct 1997. DOI: 10.1007/BFb0020180
166. S Rüger and A Ossen: *Robust model selection*. HELNET 97, VU University Press, Amsterdam, 1997
167. S Rüger: *Decimatable Boltzmann machines for diagnosis: efficient learning and inference*. IMACS'97, World Congress on Scientific Computation, Modelling and Applied Mathematics, vol 4, pp 319–324, Wissenschaft und Technik Verlag, 1997
168. S Rüger and A Ossen: *Clustering in weight space of feedforward nets*. Int'l Conf on Artificial Neural Networks (ICANN, Bochum, Germany), Springer LNCS 1112, pp 83–88, Jul 1996. DOI: 10.1007/3-540-61510-5_18
169. A Ossen and S Rüger: *An analysis of the metric structure of the weight space of feedforward networks and its application to time series modeling and prediction*. European Symposium on Artificial Neural Networks (ESANN, Brugges, Belgium), pp 315–322, D facto publications, 1996
170. S Rüger and A Ossen: *Performance evaluation of feedforward networks using computational methods*. Neural Networks and their Applications (NEURAP, Marseilles, France), pp 35–39, IUSPIM, Mar 1996
171. S Rüger: *Stable dynamic parameter adaptation*. Advances in Neural Information Processing Systems 8, pp 225–231, MIT Press, 1996

Technical reports

172. S Rüger and S Gauch: *Feature reduction for document clustering and classification*. DoC TR 2000/8, Imperial College London, 2000
173. S Rüger: *Efficient inference and learning in decimatable Boltzmann machines*. Technical report 97-5, Informatik, Technische Universität Berlin, 1997
174. S Rüger, A Weinberger and S Wittchen: *Decimatable Boltzmann machines vs Gibbs sampling*. Technical report 96-29, Informatik, Technische Universität Berlin, 1996

Keynotes, invited presentations and panels

Keynotes

175. *Visual mining - interpreting image and video*, International Conference on Information Retrieval and Knowledge Management, CAMP 2016, Melaka, Malaysia, 23–24 Aug 2016
176. *Visual mining - interpreting image and video*, IEEE International Conference on Semantic Computing, ICSC 2016, Laguna Hilla, California, 3–5 Feb 2016
177. *Knowledge discovery in the web: potential, automation and limits*, International Conference on Knowledge Management and Knowledge Technologies, I-Know 2011, Graz, Austria, 7–9 Sep 2011
178. *Are we there yet? Challenges and opportunities for content-based multimedia indexing*, Content-Based Multimedia Indexing 2011, Madrid, Spain, 15 June 2011
179. *Browsing and searching in image databases using image content*, Image retrieval session keynote, Information Retrieval Facility Symposium, Vienna, 8 Jun 2011
180. *Keynote talk: More than a thousand words*. Int'l Conf on Semantic and Digital Media Technologies (SAMT, Graz, Austria), Springer LNCS 5887, p 2, 4 Dec 2009

181. *More than a thousand words* at the ImageCLEF Workshop on Visual Information Retrieval Evaluation, 29 Sep 2009, Corfu, Greece
182. *More than a thousand words* at the Int'l Conf on Intelligent Computing and Information Systems (in co-operation with ACM), 19–22 Mar 2009, Cairo, Egypt
183. *New paradigms of multimedia access* at the *Epson Exceeding in Culture* Forum, Axica Congress and Event Centre, Berlin, Germany, 27 Feb 2007
184. *Multimedia Digital Libraries: challenges and opportunities* at the INFODAY meeting for AudioVisual search engines. European Commission, DG Information Society & Media, Brussels, 19 Dec 2005

Invited presentations at events

185. *Visual mining - interpreting image data* at From Big Data to Smart Knowledge - Text and Data Mining in Science and Economy, Cologne, 23–24 Feb 2015
186. *Is it possible to measure the aesthetics of photographs?* at PROSECCO Contact Forum on Computational Creativity, Madrid (El Escorial), 21–23 Feb 2014
187. *Wissenserschliessung im Web: Potential, Automatisierung und Grenzen* at DFG symposium on *Web Research*, TU Darmstadt, 19–20 May 2011
188. Invited participation Dagstuhl seminar *Challenges in Document Mining*, Schloss Dagstuhl, Wadern, Germany, 25–29 Apr 2011
189. *Multimedia queries: is a picture worth a thousand words?* University Seminar series: *The Beauty of Computers*, Free Uni of Bozen, Italy, 18 Oct 2010
190. Invited participation Dagstuhl seminar *Automation in Digital Preservation*, Schloss Dagstuhl, Wadern, Germany, 18–23 Jul 2010
191. *Visual resource discovery: Can user interaction and automated processing replace expensive meta-data?* Dagstuhl seminar *Interactive Information Retrieval*, Schloss Dagstuhl, Wadern, Germany, 1–6 Mar 2009
192. *Browsing and searching local media collections* at The Royal Society (UK) and NRF (SA) Workshop *For billions — user-generated content systems and services for developing country contexts*, 1 Jul 2008, Cape Town, SA
193. *Multimedia Retrieval using automated image annotation* at the AHRC Methods Network Workshop *Annotating image archives to support literary research*, Cardiff, 10 Oct 2007
194. *Can Multimedia IR get away with not using metadata?* at the *Research Challenges in Multimedia Analysis and Retrieval* workshop, University of Glasgow, 20 Jul 2007
195. *Putting the user in the loop: visual resource discovery* at the *Semantic Image Retrieval — The User Perspective* Workshop, Brighton, UK, 26 Mar 2007
196. *Beyond Multimedia Digital Libraries: responding to the trends of our time* on the occasion of the signing of a Memorandum of Understanding between Goldsmiths College, University of London, and St Martin's Institute of Information Technology, Malta, on founding an International Research Institute. Valletta, Malta, 18 Nov 2006
197. *Image, shape and multimedia resource discovery* (co-presented with Prof Frederic Fol Leymarie of Goldsmiths) at CILIP, the Cataloguing & Indexing Group Annual Conference, University of East Anglia, 14 Sep 2006
198. *New paradigms in media access* at the Games and Media Event (GaME '06), Imperial College London, 17 May 2006
199. *Putting the user in the loop: visual resource discovery* at Adaptive Multimedia Retrieval 2005, Glasgow, 28 Jul 2005

200. *Multimodal visual resource discovery* at the National e-Science Workshop on Multimodal Behavioural Data and e-Collaboration, Edinburgh, 14 Jul 2005
201. *Multimedia Digital Libraries* at Intelligent Heritage Research Workshop, Electronic Imaging & the Visual Arts Conference, London, 15 Feb 2005
202. *New paradigms in information visualisation* at NSF Strategic Workshop on the NSDL (National Science Digital Library) at the Dibner Institute, MIT, Cambridge, MA, 9 Mar 2002

Panel participation

203. *What will search look like in 2015?* at BCS IRSG Search Solutions 2010, London, UK, 21 Oct 2010
204. *The Future of Multimedia Retrieval Research* at the Int'l Workshop on Content Based Multimedia Indexing, London, UK, 20 Jun 2008
205. *Challenges Ahead* at the *Research Challenges in Multimedia Analysis and Retrieval* workshop, University of Glasgow, 20 Jul 2007
206. *Epson Exceeding in Culture* Forum, Axica Congress and Event Centre, Berlin, Germany, 27 Feb 2007
207. *Intelligent environments for public space* at the Royal Institute of British Architects, London, Intelligent Media Initiative, 5 Oct 2006
208. *Imagery vocabulary, computer vision and machine learning for semantics and performance measures* at the International Conference on Image and Video Retrieval, Tempe, AZ, 13 Jul 2006
209. *How would we like to access digital material in the future?* at the panel *Visions & Challenges in Digital Media* during EU workshop on the Integration of Knowledge, Semantics and Digital Media Technology, London, 1 Dec 2005
210. Panel *Adaptive content-based image retrieval* at AMR 2005, Glasgow, 28 Jul 2005
211. *Knowledge-driven content processing and the Semantic Web* at EU IST launch day of the 4th and 5th call for framework 6 during EU workshop on the Integration of Knowledge, Semantics and Digital Media Technology, London, 26 Nov 2004

Tutorials at conferences, summer schools and research institutes

212. *Visual Retrieval and Mining*. Tutorial at the [European Summer School in Information Retrieval 2017](#), Barcelona, Spain, 4 – 8 Sep 2017
213. *Visual Retrieval and Mining*. Course at the [RuSSIR Summer School in Information Retrieval 2017](#), Yeketerinburg, Russia, 21–25 Aug 2017
214. *Multimedia Information Retrieval*. Tutorial at the International Conference on Information Retrieval and Knowledge Management, CAMP 2016, Melaka, Malaysia, 23–24 Aug 2016
215. *Multimedia Retrieval*. Course at the Autumn School Information Retrieval and Information Foraging, Dagstuhl, Germany, 21–26 Sep 2014
216. *Multimedia Information Retrieval frameworks*. Tutorial at BCS Search Solutions, London, UK, 26 Nov 2013
217. *Multimedia Information Retrieval*. Tutorial at the IEEE International Conference on Systems, Man, and Cybernetics, Manchester, UK, 13 Oct 2013
218. *Multimedia Information Retrieval*. Tutorial at the 6th Information Retrieval Facility and 2nd Open Interdisciplinary MUMIA Conference, Limassol, Cyprus, 7 Oct 2013

219. *Multimedia Information Retrieval*. Lecture Series at the National Institute of Informatics, Tokyo, Japan, 19 March – 7 May 2012
220. *Multimedia Information Retrieval*. Tutorial at the European Summer School in Information Retrieval, Koblenz, Germany, 29 Aug – 2 Sep 2011
221. *Multimedia queries and indexing*. Course at *Web of data*, the joint RuSSIR/EDBT Summer School, St Petersburg, Russia, 15–19 Aug 2011
222. Invited keynote tutorial *Multimedia Information Retrieval* at the Automatic Image Annotation and Retrieval Workshop, Puebla, Mexico, 6–8 Oct 2010
223. *Multimedia Information Retrieval*. Course at the Russian Summer School in Information Retrieval, Voronezh, Russia, 13–18 Sep 2010
224. *Multimedia Document Access*. Tutorial at the European Conference on Research and Advanced Technology for Digital Libraries, Glasgow, UK, 6 Sep 2010
225. *Multimedia Information Retrieval* (with S Little). Tutorial at the Joint Conference on Digital Libraries, Brisbane, Australia, 21 Jun 2010
226. *Multimedia Information Retrieval*. Tutorial at the European Summer School in Information Retrieval, Padua, Italy, 31 Aug – 4 Sep 2009
227. *What you mean is what you watch: multimedia and the semantic web* (with M Hausenblas and V Tablan). Tutorial at the European Semantic Web Conference, Budva, Montenegro, 10 Jun 2006

Invited departmental or research group talks

- 39 talks, 28 of which overseas, on a range of current research topics

Research and academic service

Summary for Multimedia Information Retrieval Research

- Generated more than £2.2m project funding: 1 EU FP6 integrated project (as principal investigator), 7 EPSRC projects (5 as principal investigator, 2 as co-investigator), 1 joint NSF-EU project (as co-investigator), 1 charity-sponsored project (as co-investigator) and 1 industry-sponsored project (as principal investigator)
- Won support from ELIAS network, Europe; NII, Japan; INPG, France; BT; the BBC; AT&T Research labs, Cambridge; the Victoria & Albert Museum; the British Library; the University of Waikato, NZ; the Australian Research Council and Misys plc, UK
- Co-edited 9 proceedings [14–22] and 4 special issues [23–26]; wrote 1 book [5]; published 8 book chapters [6–13] and 13 refereed journal articles [38–50]; successfully supervised 11 PhD students [27–37]; presented 64 refereed papers at international conferences [52, 54–114] and 8 at international workshops [130–137]; participated in 15 evaluation conferences [115–129]; demonstrated 5 software products at international conferences [138–142]; contributed 15 invited papers to journals, conferences and workshops [144–158]; produced 1 iTunes U video [1] and 2 magazine articles [3, 4] *about* the work of the group
- Gave 10 keynotes, presented 17 invited talks and participated in 9 panels at scientific events and gave 39 invited departmental or research group talks
- Held 16 tutorials or lecture series at conferences, summer schools or research institutes
- Was appointed as Visiting Scholar at institutions in New Zealand (3 months in 2014, 4 months in 2008/9 and 3 months in 2004), Japan (2 months in 2012), France (3 months in 2005) and Australia (3 months in 2003)
- Visited labs in Puebla (1 week, 2010), Bolzano (2 days, 2010), Sydney (1 week 2009), Tokyo (1 week in 2008), Bayreuth (1 month in 2004), Dublin (2 days in 2003), Hamilton (2 weeks in 2003) and Hong Kong (2 weeks in 2003)
- Held a Visiting Fellowship at Cranfield University, UK (2012–2013)
- Holding a Honorary Professorship at Waikato University, NZ (2009–2020)
- Held a Visiting Principal Research Fellowship at Imperial College London (2006–2009)
- Hosted 10 research visitors in my lab
- Filed 1 patent [143], assigned software licences to industry and worked as consultant
- Served the academic community as track chair for Semantic Multimedia Web of [ESWC 2014](#), programme co-chair of [ICMR 2014](#), programme co-chair of [WI 2013](#), programme co-chair of [RuSSIR 2013](#), programme co-chair of [ECIR 2013](#), posters chair of [IiX 2012](#), programme co-chair of [SAMT 2010](#), programme co-chair of [WI 2010](#), programme chair of [IRFC 2010](#), general chair of [ECIR 2010](#), general co-chair of [ICTIR 2009](#), general chair of [ECIR 2006](#) and (co-)chair of seven workshops; member in 6 research-related advisory groups and committees; associate editor of 5 journals; guest editor for 4 journal special issues; member in 93 Programme Committees of international conferences; reviewer for 18 funding bodies; reviewer for 35 journals and 3 book publishers; examiner of external PhD students

Research funding

Research grants

- Wolfson foundation: £1,000,000 for The Open University, *OpenScience Laboratory*, led by the Science Faculty of the OU, Co-Investigator, 2012–
- EPSRC: £66,489 for The Open University, *Video Digital Libraries*, in collaboration with Dr David Bainbridge, the University of Waikato, Nov 2008–Apr 2009, Principal Investigator (EP/G036187/1)

- EPSRC: £323,703 for The Open University, *Renaissance: Towards Context-Sensitive Information Retrieval Based on Quantum Theory: With Applications to Cross-media Search and Structured Document Access*, Apr 2008–Mar 2011, joint project with Glasgow University and The Robert-Gordon-University, Co-Investigator (EP/F014708/1)
- EU: £309,000 for The Open University, *PHAROS: Platform for search of Audiovisual Resources across Online Spaces*, FP6-IST-2005-045035, Jan 2007–Dec 2009, Principal Investigator
- EPSRC: £5,285, Visiting Fellowship for David Bainbridge, May 2007–Sep 2007, joint grant with University of Swansea, Principal Investigator (Final report EP/F004842/1, overall assessment: “outstanding”)
- EPSRC: £13,378 support of student attendance and funding for Keynote Speakers. ECIR 2006: 28th European Conference on Information Retrieval, Mar 2006–Aug 2006, Co-Investigator (Final report EP/D055644/1, overall assessment: “outstanding”)
- BT: £35,000 for support towards *Multimedia Digital Libraries* project, 2005, Principal Investigator
- EPSRC: £63,053, *Multimedia Knowledge Management Network*, Aug 2004–Feb 2008, Principal Investigator (GR/T02690/01)
- EU: DELOS Network of Excellence on Digital Libraries, FP6-IST-507618, Jan 2004–Dec 2007, FP6, Collaborator in WP5 from Oct 2004
- NSF-EU: £131,000 for Imperial College London, *Cultural Heritage Language Technologies*, NSF-0122491 and FP5-IST-2001-32745, Jun 2002–May 2005, Co-Investigator
- EPSRC: £46,000, CASE studentship (Marcus Pickering) with AT&T Research Labs, Oct 2000–Sep 2003, Supervisor (award 00801323)
- EPSRC: £251,259, *The Freedom to Forget: Multimedia Information Retrieval*, Oct 1999–Sep 2004, Principal Investigator (Final report GR/A91364/01, overall assessment “outstanding”)

EPSRC abolished the assessment of projects in 2007; hence, some projects were not assessed.

Other financial support and support in kind

- ELIAS network, European Science Foundation: €6,000 student travel to RuSSIR, 2013
- NII, Japan: support for a 2 month visit, Mar–May 2012
- British Library: *digitised 18th centuries newspapers*, 2008
- INPG, France: support for a 3 month visit, Mar–May 2005
- BBC: *video data*, 2004
- Victoria & Albert Museum, London: *image collection*, 2004
- University of Waikato, NZ: support for a 3 month visit, Jan–Apr 2004
- Australian Research Council: support for a 3 month visit, Jan–Mar 2003
- AT&T Research Labs, UK: £4,200 research support, Oct 2000–Sep 2003
- Misys plc, UK: £1000 award for supervising best UK computing student, Sep 2000

Research outcomes

My research interests are firmly rooted in the area of automated multimedia understanding with a view to improving multimedia indexing, search and browsing in digital collections and beyond. The relevant research contributes to — and is informed by — machine learning, computer vision and artificial intelligence.

Foundational research. From 2002 my group has researched and developed multimedia search engines with the objectives of i) a unifying theoretical framework; ii) inclusion of speech, image and video data; iii) high precision of the best-ranked documents; iv) ease of using; v) efficient execution time. I consider the single most valuable outcome of the “early years” the creation of a research multimedia search engine platform that meets above objectives and that stood the test of independent evaluation. This gave rise to further research, industrial collaboration and exploitation alike.

The unifying theoretical framework encompasses the treatment of text, music, speech and visual features from images and videos in a symmetrical way, so that their effects can be combined to form a consistent judgement of overall similarity. We developed optimised linear models subject to convexity constraints expressed as Lagrangian multipliers, both for one-shot (non-interactive) retrieval [109] and for relevance feedback [64, 104].

This setting allowed the development of descriptive feature vectors that lend themselves to retrieval tasks. For example, we developed texture models specifically for retrieval (as opposed to classification) based on psychological, signal-processing and statistical methods [47, 98]. In the area of visual retrieval, we developed novel interactive browsing and search techniques [122, 123]. All the simple features can be combined with distance measures, which we developed and optimised for multimedia retrieval [94]. It turned out that novel non-standard distances can be applied to feature components, as opposed to whole feature vectors, to allow more *time-efficient* retrieval, too, using only a fraction of the index data [92].

We were the first to propose exhaustive polyphonic music annotation with symbolic data that is amenable to text search techniques [107, 110], the first to systematically evaluate this technology [50] despite a lack of test sets [137], and to suggest novel ranking procedures for polyphonic music [95, 102].

At a user-interface level we introduced the automated structuring principles of lateral similarity [91, 101], which has proven beneficial in real-world evaluations [122, 123], and that of search-result clustering and navigation [112, 113] and which later has been refined in a joint NSF-EU project with cultural heritage documents [96, 99, 103] and evaluated to HCI standards [89]. We defined novel relevance-feedback models for the retrieval process [65, 97, 106]. We contributed novel TV news representation and summarisation schemes that are based on visual summaries [105] and textual summaries (of subtitles) [125] and new interface design [138].

Later, the group contributed to automated multimedia processing for search with components for an industrial-strength audiovisual platform within the European FP6 PHAROS project [63, 67, 116, eg]. We developed new paradigms of semantic multimedia retrieval [39, 42] that rely on not-necessarily perfect automated semantic annotations of scenes from pixels. These automated annotations, even though created with state-of-the-art machine learning models and external semantic world knowledge, are imperfect [58, 59, 61] but still significantly contribute to overall retrieval processes.

Future research goals

1) Linking the real world to databases. Applications of this research include near-duplicate detection of images: For example, finding which lecture videos use a particular powerpoint slide that a student struggles with (and where that slide appears in the video). Or recognising a museum exhibit in an online catalogue from a smart-phone image, thus linking the real world with the online world through taking a picture.

2) Media repository mining. This research underpins media mining of large media repositories to discover significant aspects of politics, culture or entertainment. The number of times particular buildings (seats of power) or individual leaders are shown on TV news, who they shake hands with, can already allude to a political structure and spheres of influence; the number of times

a particular video clip of an event or theme is being replayed in which regions of the world in which segments of news programmes gives a sense of the outreach of the event or theme in this clip. In the same way, by looking at many different clips, the commonality that certain regions have becomes explicit in how they treat the corresponding themes.

3) Image classification and analysis. Examples of research in this area is the feature extraction and analysis in large sets of images that are, for example, considered aesthetically pleasing. The underlying research question would be “what makes a good photograph”, but the methods for tackling how to discriminate a good photo from a less good one are generic. Similar and related machine learning techniques could be applied to photographs of own meals with a view to gain automated insight into lifestyle, habits or even calorific intake.

Research supervision

PhD advisor for

- Adam Rae: *Exploiting social networks for recommendation in online image sharing systems*, Nov 2007–Aug 2011
- Ainhoa Llorente: *Semantics and Statistics for Automated Image Annotation*, Oct 2006–Jul 2010
- Haiming Liu: *A Framework for Understanding User Interaction with Content-based Image Retrieval: Model, Interface and Users*, Oct 2006–Apr 2010
- Simon Overell: *Geographic Information Retrieval: Classification, Disambiguation and Modelling*, Oct 2005–Apr 2009
- João Magalhães: *Statistical models for semantic-multimedia information retrieval*, Oct 2004–Sep 2008, since then Assistant Professor at Universidade Nova de Lisboa, Portugal
- Alexei Yavlinsky: *Image indexing and retrieval using automated annotation*, Nov 2003–Jun 2007
- Peter Howarth: *Discovering images: features, similarities and subspaces*, Oct 2003–Apr 2007, then with Redington Partners, London
- Edward Schofield: *Fitting maximum entropy models on large sample spaces*, Mar 2002–Jul 2006 (p/time)
- Daniel Heesch: *NN^k networks for browsing and searching*, Oct 2001–Sep 2005 (p/time); *nominated for best UK PhD thesis*; postdoctoral researcher at Imperial College London, then co-founder and CTO of Pixsta, a company based around the results of his PhD
- Shyamala Doraisamy: *Polyphonic music retrieval: the n-gram approach*, Oct 2000–Apr 2004; since then Senior Lecturer, at the Faculty of Computer Science & IT, University Putra Malaysia
- Marcus Pickering: *Video retrieval and summarisation*, Oct 2000–Apr 2004

PhD examiner for

- Fereshteh Falah Chamasemani, Faculty of Computer Science & Information Technology, Universiti Putra Malaysia, Feb 2017
- Centre for Vision, Speech and Signal Processing, Faculty of Engineering and Physical Sciences, University of Surrey, Mar 2016
- Parminder Singh Reel, Computing and Communications, The Open University, Mar 2016
- Fawaz Alarfaj, School of Computer Science and Electronic Engineering, University of Essex, Jan 2016
- Gregoire Burel, Knowledge Media Institute, The Open University, Nov 2015
- Marco Bonzanini, School of Electronic Engineering and Computer Science, Queen Mary, University of London, Nov 2014

- Helen Dodd, Computer Science, Swansea University, Nov 2012
- Stefanie Nowak, Fakultät für Elektrotechnik und Informationstechnik, Technische Universität Ilmenau, Dec 2011
- György Fazekas, School of Electronic Engineering and Computer Science, Queen Mary, University of London, Dec 2011
- Zurina Muda, Electronics and Computer Science, University of Southampton, Jul 2011
- Benjamin Fields, Computing, Goldsmiths, University of London, Mar 2011
- Hany Azzam, School of Electronic Engineering and Computer Science, Queen Mary, University of London, Feb 2011
- David Weston, Computing, Imperial College London, Jan 2011
- Frank Hopfgartner, Computer Science, University of Glasgow, Sep 2010
- Elham Ashoori, Computer Science, Queen Mary, University of London, Oct 2008
- Zhigang Kong, Computer Science, Queen Mary, University of London, Mar 2007
- Francis Chantree, Computing, The Open University, Dec 2006
- Sorin Sav, Centre for Digital Video Processing, Dublin City Uni, Sep 2006
- Jonathan Hare, Electronics and Computer Science, University of Southampton, Feb 2006
- Andres Dorado, Electronic Engineering, Queen Mary, University of London, Nov 2005
- Christopher Town, Computer Laboratory, Cambridge University, Feb 2005
- Christian Frank, INP Grenoble, Ecole d'ingénieurs en génie industriel, Nov 2003
- Samer Abdallah, Electronic Engineering, King's College London, Dec 2002

MPhil examiner for

- Tsz-Ying Lui, Electronic Engineering, Queen Mary, University of London, Jan 2005

Examination panel chair for

- Vanessa Lopez, Knowledge Media Institute, The Open University, Sep 2011
- Miklos Nagy, Knowledge Media Institute, The Open University, Apr 2011
- Neil Benn, Knowledge Media Institute, The Open University, Jun 2009

Esteem indicators

- Fellowships and honorary appointments (4)
 - Honorary Professor* at University of Waikato, New Zealand, 2009–2020
 - Visiting Fellow* at Cranfield University, UK, 2012–2013
 - Visiting Principal Research Fellow* at Imperial College London, UK, 2006–2009
 - Advanced EPSRC Research Fellow*, 1999–2004
- Visiting appointments of two months or longer (6); for a full list of visits see page 27
 - Visiting Professor* at University of Waikato, Feb–May 2014
 - Visiting Researcher* at National Institute of Informatics, Tokyo, Mar 2012–May 2012
 - Visiting Professor* at University of Waikato, Nov 2008–Feb 2009
 - Maitre de Conférences* at Institut National Polytechnique de Grenoble, Mar–May 2005
 - Visiting Scholar* at University of Waikato, Jan–Apr 2004
 - Visiting Scholar* at University of Sydney, Jan–Mar 2003

- Conference organisation (11)

Co-chair for Semantic Multimedia Web track of ESWC 2014, Extended Semantic Web Conference, May 2014, Crete, Greece; programme co-chair of ICMR 2014, ACM International Conference on Multimedia Retrieval, Apr 2014, Glasgow, UK; programme co-chair of WI 2013, IEEE/WIC/ACM International Conference on Web Intelligence, Nov 2013, Atlanta, GA; programme co-chair of ECIR 2013, 35th European Conference on Information Retrieval, Mar 2013, Moscow, Russia; posters chair of IiX 2012, Information Interaction in Context Symposium, Aug 2012, Nijmegen, The Netherlands; programme co-chair of SAMT 2010, International Conf on Semantic and Digital Media Technologies, Dec 2010, Saarbrücken, Germany; programme co-chair of WI 2010, IEEE/WIC/ACM International Conference on Web Intelligence, Aug 2010, Toronto, Canada; programme chair of IRFC 2010, 1st Information Retrieval Facility Conference, May 2010, Vienna, Austria; general chair of ECIR 2010, 32nd European Conference on Information Retrieval, Mar 2010, The Open University, UK; general co-chair of ICTIR 2009, International Conf on the Theory of Information Retrieval, Sep 2009, Microsoft Research, UK; general chair of ECIR 2006, 28th European Conference on Information Retrieval, Apr 2006, Imperial College London
- Workshop organisation (7)

Chair and co-organiser of the workshop Future Directions in Multimedia Knowledge Management, Feb 2008, The Open University, Milton Keynes, UK; co-organiser of the ACM IUI 2008, International Workshop on Recommendation and Collaboration (ReColl 2008), Jan 2008, Canary Islands, Spain; co-chair and co-organiser of MMIR 2007, ACM SIGIR Multimedia Information Retrieval Workshop, Jul 2007, Amsterdam, The Netherlands; chair and co-organiser of the Multimedia Knowledge Management Network workshop: Industry meets Academia, Jan 2007, The Open University, Milton Keynes, UK; co-chair and co-organiser of MMIR 2005, ACM SIGIR Multimedia Information Retrieval Workshop, Aug 2005, Salvador, Brazil; chair and organiser of the Multimedia Knowledge Management Network inaugural workshop, Sep 2004, Imperial College London, UK; co-chair and co-organiser of MMIR 2003, ACM SIGIR Multimedia Information Retrieval Workshop Aug 2003, Toronto, Canada
- Advisory group and committee membership (6)

*EPSRC (Engineering and Physical Research) College, UK, 2001–
Steering Committee for the Int'l Conf on the Theory of Information Retrieval, 2014–2017
BCS Information Retrieval SG Committee, 2002–, (treasurer 2005–2010, chair 2016–)
Karen Spärck Jones Award panel, 2013– (chair 2014–2016)
Multimedia Knowledge Management research network, Steering Committee, 2004– (chair)
Semantic Media (EPSRC EP/J010375/1) Advisory Board, 2012–2015*
- Reviews for funding bodies (18)

*Alexander von Humboldt Stiftung (German research fellowship scheme)
DFG (Deutsche Forschungsgemeinschaft)
CHIST-ERA (Consortium of European national research funding organisations)
EPSRC (Engineering and Physical Research, UK), grant reviews and funding panels
ERC (European Research Council), reviews, panel member in 4 award cycles, deputy chair
ESRC (Economic and Social Research, UK)
EU (Commission of the European Communities), project reviews and project evaluation
FRST (Foundation for Research, Science and Technology, New Zealand)
Leverhulme Trust (UK)
NRF (National Research Foundation, Singapore)
NSF (National Science Foundation, USA)
NWO (The Netherlands' Organisation for Scientific Research)*

RAEng (The Royal Academy of Engineering)
The Royal Society, UK
RSF (Russian Science Foundation)
SNF (Swiss National Science Foundation, Switzerland)
Technologiestichting STW (Funding agency for technology research, The Netherlands)
WWTF (Vienna Science and Technology Fund, Austria)

- Associate editor for journals (5)

ITE Transactions on Media Technology and Applications (2015–)
Springer International Journal of Multimedia Information Retrieval (2011–)
Springer Information Retrieval Journal (2010–)
ACM Transactions on Information Systems (2005–2015)
Springer Machine Vision and Applications (2005–2010)

- Guest editor for journals (4)

ITE Transactions on Media Technology and Applications, special section on “Multimedia Content Analysis” (2013); *Multimedia Tools and Applications*, special issue “Trends in Semantic and Digital Media Technologies” (2013); *Neurocomputing*, special Issue “Advances in Web Intelligence” (2012); *Information Retrieval Journal*, special issue “Second International Conference on the Theory of Information Retrieval” (2011)

- Keynotes (10), invited presentations (17) and panel participations (9) at events, see page 14; tutorials at conferences (16), see page 16

- Reviews for journals (35)

ACM Multimedia Systems Journal; *ACM Transactions on Multimedia Computing Communications and Applications*; *ACM Transactions on the Web*; *Annals of Operation Research*; *The Computer Journal*; *Computer Vision and Image Understanding*; *Data Mining and Knowledge Discovery*; *Diversity*; *Engineering Applications of Artificial Intelligence*; *EURASIP Journal on Applied Signal Processing*; *IEEE Computing*; *IEEE Transactions on Circuits and Systems for Video Technology*; *IEEE Transactions on Evolutionary Computation*; *IEEE Transactions on Image Processing*; *IEEE Transactions on Knowledge and Data Engineering*; *IEEE Transactions on Multimedia*; *IEEE Transactions on Neural Networks*; *IEE Proceedings Vision, Image & Signal Processing*; *Information Management*; *Information Processing & Management*; *Information Retrieval*; *Journal of Applied Logic*; *Journal of Computer Vision*; *Journal of Computing and Information Technology*; *Journal of Electronic Imaging*; *Journal of Mathematical Modelling and Algorithms*; *Journal of Virtual Reality and Broadcasting*; *Journal of Visual Communication and Image Representation*; *Journal on Digital Libraries*; *Journal on Web Semantics*; *Knowledge Discovery in Databases*; *Multimedia Tools and Applications Journal*; *New Review of Hypermedia and Multimedia*; *Pattern Recognition Letters*; *Reliable Computing*

- Book reviews for publishers (3)

Pearson Education; *John Wiley & Sons*; *Idea Group*

- Member of programme committees (93)

Track chair *ICTIR 2017*; Senior PC member *ECIR 2017*; *CHIIR 2017*; *IJCAI 2016*; *ICMR 2016*; Area Chair *ICME 2016*; Senior PC member *ECIR 2016*; *CHIIR 2016*; *MM 2015*; *CIKM 2015*; *RuSSIR 2015*; *ICTIR 2015*; *ICMR 2015*; *JCDL 2015*; *SIGIR 2015*; Senior PC member *ECIR 2015*; *UIST 2014*; *JCDL 2014*; *RuSSIR 2014*; *SIGIR 2014*; *WI 2014*; *IiX 2014*; *SIGCHI 2014*; *iKNOW 2013*; *FDIA 2013*; *SIGIR 2013*; Mentor *ECIR 2013*; *WWW 2012*; *ICPR 2012*; *WIR 2012*; *TPDL 2012*; *SIGIR 2012*; *RuSSIR 2012*; *WWW 2012*; *ECIR 2012*; *CIKM 2011*; *AMR 2010*; *ICTIR 2011*; *PMHR 2011*; *IRFC 2011*;

SIGIR 2011; Best Poster Panel *ECIR 2011*; *WSDM 2011*; *AMR 2010*; *CIKM 2009*; *WIR 2009*; *ECIR 2009*; *SAMT 2008*; *MIR 2008*; *CIKM 2008*; Senior PC member *SIGIR 2008*; *CIVR 2008*; *AMR 2008*; *JCDL 2008*; *CBMI 2008*; *ECIR 2008*; *ReColl 2008*; *MMIU 2008*; *CIKM 2007*; *FDIA 2007*; *CIVR 2007*; *AMR 2007*; Senior PC member *SIGIR 2007*; *ECIR 2007*; *CIKM 2006*; Area Coordinator for Multimedia Retrieval *SIGIR 2006*; *ICME 2006*; *AMR 2006*; *RDRC 2006*; *ISPACS 2005*; *ISWC 2005*; *EWIMT 2005*; *CIKM 2005*; *ICETE 2005*; *ISMIR 2005*; *ICIP 2005*; *SIGIR 2005*; *AMR 2005*; *ICME 2005*; *CoLIS 5*; *MSW 2005*; *EWIMT 2004*; *ICIP 2004*; *ISIMP 2004*; *MIR 2004*; *WITSE 2004*; *SIGIR 2004*; *CIVR 2004*; *MDDE 2004*; *CIKM 2003*; *MIR 2003*; *ISMIR 2002*; *CIKM 2000*

Collaborations

- The [OpenScience Laboratory](#) is an ambitious project at The Open University in partnership with the Wolfson foundation to develop an online laboratory for practical science teaching. Through collaborative research within Sciences, Computing and the Knowledge Media Institute, the project provides remote access to laboratories and observatories, creates virtual laboratories and instruments, innovates online field investigations and supports citizen science. The primary user groups for the OpenScience Laboratory come from The Open University's own 260,000 students, secondary schools in the community and interested citizens.
- The EPSRC-funded *Video Digital Libraries* project, 2008–2009, was a collaboration between the Greenstone Digital Library research group at the *University of Waikato* and the Multimedia and Information Systems group at The Open University. This project exploited outputs of the EU project PHAROS (see below) to create a video digital library that automates indexing and search. This collaboration has led to support of The Open University Library for a prototype system and to a follow-up project *Very Large Digital Libraries* in 2014.
- The EPSRC funded project *Renaissance: Towards Context-Sensitive Information Retrieval Based on Quantum Theory: With Applications to Cross-media Search and Structured Document Access* was a joint project with *The University of Glasgow, UK* and *The Robert-Gordon-University, UK*.
- The IST FP6 EU project PHAROS (Platform for searchH of Audiovisual Resources across Online Spaces) is a consortium of 13 partners: *Engineering (coordination), Italy*; *France Telecom*; *FAST search & transfer, Norway*; *L3S Research Centre, University of Hannover, Germany*; *Fraunhofer IDMT, Germany*; *Knowledge Media Institute, The Open University, UK*; *EPFL, Switzerland*; *UPF, Spain*; *VTT, Finland*; *Circom Regional, France*; *Metaware, Italy*; *Web Models, Italy*; *Sail Labs Technology, Austria*. The key outcome was a modular and scalable platform for audio-visual search.

PHAROS was selected by the Italian Ministry of Innovation to represent Italian creativity and know-how in the Shanghai Expo 2010. In June 2010, PHAROS has been awarded the Italian Prize for “ICMT Innovation” promoted by the Presidency of the Italian Republic in the category “Best practices in IT-driven convergence”.

- The *Multimedia Digital Libraries* project was a collaboration between the Greenstone Digital Library group at the *University of Waikato*, the *University College London* Interaction Centre, my Multimedia Information Retrieval team at *Imperial College London, BT*, the *BBC* and London's *Victoria and Albert Museum* to create a true Multimedia Digital Library with visual, geo-temporal and textual search and browsing capability.

- *Multimedia Knowledge Management network*, initially funded through EPSRC from 2004–2008 is a research network between UK universities (*Glasgow University; Goldsmiths, University of London; Imperial College London; Northumbria University; Oxford University; Queen Mary, University of London; The Open University; University of Brighton; University of Sheffield and University of Southampton*). The network was coordinated by myself as *Principal Investigator* for the EPSRC funded period and as *chair of the Steering Committee* after that. It succeeded in forming a Multimedia Knowledge Management research community in the UK and the identification of corresponding new interdisciplinary research topics through improved communication and collaboration between the members of this community, and with related groups both in the UK and internationally. The network also financially supported travel for junior researchers and lab exchanges of junior and senior researchers alike.
- *Cultural Heritage Language Technologies*, funded through a joint NSF and EU project. The joint aim of the 8 partners (*University of Missouri at Kansas City; Tufts University; University of California at Los Angeles; University of Kentucky; Imperial College London; Cambridge University; CNR, Pisa and University of Copenhagen*) developed Digital Library technologies to support research, analysis and reading of classic documents and collections. My team contributed state-of-the-art document clustering, labelling and visualisation of search engine results.

Invited visits

- Faculty of Computing and Mathematical Sciences, University of Waikato, Feb–May 2014
- National Institute of Informatics, Tokyo, Mar–May 2012
- Faculty of Computer Science, Free Uni of Bozen, Italy, 2 days, Oct 2010
- Instituto Nacional de Astrofísica, Óptica y Electrónica, Puebla, Mexico, 1 week, Oct 2010
- School of Information Technologies, University of Sydney, 1 week, Feb 2009
- School of Computing and Mathematical Sciences, Uni of Waikato, Nov 2008–Feb 2009
- National Institute of Advanced Industrial Science and Technology, Tsukuba; National Institute of Informatics, Tokyo; University of Tokyo; 1 week, Nov 2008
- *Maître de Conférences* at the Laboratoire GILCO (Gestion Industrielle Logistique et Conception), Ecole Nationale Supérieure de Génie Industriel, Institut National Polytechnique de Grenoble; Mar–May 2005
- Universität Bayreuth, Informatik, 1 month, Aug 2004
- School of Computing and Mathematical Sciences, University of Waikato, Jan–Apr 2004
- Centre for Digital Video Processing, Dublin City University, 2 days, Aug 2003
- School of Information Technologies, University of Sydney, Jan–Mar 2003
- School of Computing and Mathematical Sciences, University of Waikato, 2 wks, Mar 2003
- Department of Electronic and Information Engineering, Hong Kong Polytechnic University, 2 weeks, Jan 2003

Hosted visitors

- Dr Shyalama Doraisamy, University Putra Malaysia, 3 months, Jun–Sep 2011
- Prof Manmatha, University of Massachusetts at Amherst, MA, 6 weeks, Jun–Jul 2009
- Dr Cathal Gurrin, Dublin City University, Ireland, 3 days, Sep 2008
- Dr Alex Hauptmann, Carnegie Mellon University, PA, 3 days, Feb 2008
- Dr David Bainbridge, University of Waikato, New Zealand, 1 month, May 2007
- Prof Ian Witten, University of Waikato, New Zealand, 2 days, Sep 2004
- Prof Stephen Downie, University of Illinois at Urbana-Champaign, IL, 3 days, Jun 2004
- Prof R Manmatha, University of Massachusetts at Amherst, 2 days, Aug 2003
- Prof Dina Goren-Bar, Ben Gurion University of the Negev, Israel, 1 week, Feb 2003
- Prof Mickaël Gardoni, INPG, France, 10 weeks during Spring Term 2001

Membership in professional bodies

- Fellow, Higher Education Academy, 2004–
- ACM Member, 2004–
- IEEE Member, 2004–2009
- Deutscher Hochschulverband, 2004–2006
- EPSRC Peer Review College, 2001–(2019)
- BCS, The Chartered Institute for IT, member, 1999–

Learning and teaching

Summary. I have teaching experience in universities, both in Germany and in Britain, spanning a variety of interaction modes with students: PhD student supervision, one-to-one project supervision, small-group tutoring, seminars, block courses, practicals and traditional lecture courses.

This experience is underpinned by gaining a formal postgraduate qualification in 2002 following a one-year part-time postgraduate course at Imperial College London: *Certificate of Advanced Study in Learning and Teaching*. CASLAT is modular postgraduate qualification for those who teach in higher education. It is accredited through the corresponding professional body, the *Higher Education Academy*, and is aligned to the UK Professional Standards Framework. I have since become a fellow of the Higher Education Academy.

As *Advanced Research Fellow* (1999–2004) I was not required to teach or supervise individual students, but I carried out individual student supervision for BSc/MSc theses and around 50% of the teaching course load of a lecturer. From 2006 I held a Research professorship at The Open University, but still carried out student supervision and teaching activities at universities elsewhere, and gave a number of tutorials and lecture series at conferences, summer schools and institutes (see page 16). In particular, I undertook the following educational activities from 2000:

- Advised 11 PhD students, who received their PhD after 4 years or less
- Supervised 34 postgraduate MSc projects, 2 of which were awarded departmental best-project prizes
- Supervised 27 undergraduate projects, 2 of which received national prizes (Science, Engineering and Technology awards 2000 and 2004)
- Personal tutor for around 20 students
- Delivered, devised and prepared numerous lecture courses *Web Search: Technical and Social Issues, Multimedia Systems; Machine Learning; Advances in Artificial Intelligence; Digital Libraries; Knowledge Management Techniques* some of which as block course for Industrial MSc students; *Artificial Neural Networks*

Teaching philosophy

I aim for students to achieve good learning outcomes by

- *Setting and communicating aims and objectives*, which are compatible with the standards of the degree course and the ability, background and constraints of the students
- *Treating students as mature and capable individuals* recognising that each individual has their own unique set of interests, skills and talents
- *Linking classroom learning with real-world problems* and other relevant learning experience of the same degree course (cross-fertilisation)
- *Getting students involved with the subject* through discussions in class; I find this increases their motivation and can shift the focus from a I-do-this-because-this-is-worth-so-and-so-many-marks attitude towards a deep-learning approach
- *Providing a relaxed environment* where students can not only see and hear the activities in class but are also encouraged to participate and give feedback; this includes making pauses and varying the types of activities (lecture, buzz-groups, problem solving in groups etc)
- *Encouraging group work in class*: peer-to-peer learning makes students more active and less dependent on the particular way I deal with a subject; weaker students become involved while stronger students can be given an active role
- *Asking students to solve a series of small to medium problems during class*; this increases their confidence through own success and encourages critical thinking

- *Challenging the students*
- *Eliciting feedback, monitoring student progress and reflecting* on student situation and achievements to identify how teaching and learning can be improved
- and, last not least, by *being knowledgeable, well-prepared and approachable*

I see myself as a *facilitator* who helps students gaining knowledge and skills. My teaching philosophy is based on two observations that are supported by educational research:

1. The type of learning, surface or deep, is influenced by the amount and type of student participation, ie, if students take an active role in the process they are more likely to exhibit a deep-learning approach
2. The learning outcome in terms of skills and knowledge, grade achievement and satisfaction is significantly better with students who take a deep-learning approach

Much of the above is true for my philosophy on *project supervision*. I expect students to set aims and objectives within the scope of the project framework (which is given by me at the outset), to discuss their project schedule with me and to take responsibility for their project whilst I see my role as an *advisor* on how they achieve their objectives.

Courses that I teach are normally supported by an *on-line web site* or *moodle* including the course's aims and objectives, a syllabus, dates and deadlines, the handouts, exercises, coursework, and additional references.

During class I make use of on-line projectors for lecture elements and the white board for discussion and solving exercises. I usually plan time-slots for small-group exercises during lectures. They give students an opportunity to reflect there and then on the material and present their solutions of the exercises to class. Often I use all contact hours of the course in this style thus dissolving the traditional separation of lectures and tutorials. The key question for me is how to add value during contact time over and above freely available open educational resources.

Undergraduate and master student supervision

- MSc student project supervision at Cranfield University 2012– (8)
- MSc student project supervision at Imperial College London 1997–2007 (26)
- Undergraduate student project supervision at Imperial College London 1999–2006 (27)
- Diploma thesis supervision at Technische Universität Berlin, 1996 (3)

Teaching assignments

Lectures at University of Waikato (2014)

Mar & May 2014 Web Search: Technical and Social Issues

Lectures at Imperial College London (1999–2006)

Spring 2006	<i>Multimedia Systems</i> (50%, 3 hrs/wk)
Autumn 2005	<i>Digital Libraries</i> (78%, 3 hrs/wk)
Autumn 2005	<i>Machine Learning</i> (22%, 3 hrs/wk)
Spring 2005	<i>Multimedia Systems</i> (50%, 3 hrs/wk)
Autumn 2004	<i>Digital Libraries</i> (78%, 3 hrs/wk)
Autumn 2004	<i>Advances in Artificial Intelligence</i> (22%, 3 hrs/wk)
Autumn 2003	<i>Knowledge Management Techniques</i> (50%, 3 hrs/wk)
Summer 2003	<i>Knowledge Management Techniques</i> (50%, 30 hrs block course)
Autumn 2002	<i>Knowledge Management Techniques</i> (50%, 3 hrs/wk)

Summer 2002 *Knowledge Management Techniques* (50%, 30 hrs block course)
 Summer 2001 *Knowledge Management Techniques* (50%, 30 hrs block course)
 Spring 2001 *Advanced Knowledge Management Techniques* (50%, 3 hrs/wk)
 Spring 2000 *Artificial Neural Networks* (100%, 3 hrs/wk)
 Spring 1999 *Neural Networks* (100%, 2 hrs/wk lectures + 1 hr/wk tutorial)

Personal tutoring at Imperial College London (2002–2006)

2005–2006 Personal and programming tutor for 4 and 8 Computing students, respectively
 2004–2006 Personal and mathematics tutor for 3 and 6 Computing students, respectively
 2002–2006 Personal and programming tutor for 8 Joint-Maths-and-Computing students
 2002–2006 Personal tutor for 2–3 MSc students per year

Tutorials at Imperial College London (1997–1998)

Spring 98 Graphs and Algorithm Analysis
 Autumn 97 Computability, Algorithms and Complexity

Lectures at Technische Universität Berlin (1992–1997)

star(*) means responsibility for delivery and assessment (*Lehrauftrag*)
 Summer 97 *Statistical Methods and Neural Networks** (26 hrs block course)
 Winter 96/97 *Project Connectionism II* (6 hrs/wk project)
 *Modern Methods of Neural Networks** (2 hrs/wk seminar)
 Summer 96 *Stochastics and Determinism in the Theory of Neural Networks*
 (4 hrs/wk lectures + 2 hrs/wk tutorials)
 Summer 95 *Theory of Neural Networks** (4 hrs/wk lectures + 2 hrs/wk tutorials)
 *Project Connectionism I** (6 hrs/wk project)
 Winter 94/95 *Connectionism** (2 hrs/wk lectures + 2 hrs/wk tutorials)
 Summer 94 *Theory of Neural Networks** (2 hrs/wk lectures + 2 hrs/wk tutorials)
 Winter 93/94 *Course in C* (one week, 20 hours)
 *Course in UNIX** (2 hrs/wk lectures + 4 hrs/wk practical)
 Winter 92/93 *Course in C* (one week, 20 hours)
 Course in UNIX (2 hrs/wk lectures + 4 hrs/wk practical)

Tutorials at Technische Universität Berlin (1992–1993)

1992–1993 As teaching and research assistant: tutorials for Informatics for Engineers,
 Informatics for Physicists and Informatics for Environmental Engineers

Tutorials at Freie Universität Berlin (1987–1990)

1987–1990 As tutor: tutorials, gave courses in C, prepared practicals, co-developed new
 teaching experiments such as receiving satellite data and toy car races

Prize-winning student projects under my supervision

- Content-based music retrieval with n-grams and a music-friendly interface (Shyamala Doraisamy, Stefan Ruger and Sharifah Raini Manaf, 2006), Silver Medal at the Design, Research and Innovation Exhibition, University Putra Malaysia
- Image and video browser over the web (A May, MEng, 2004, *national prize*: Science, Engineering and Technology Award 2004 — best use of IT in all UK undergraduate projects in science, engineering or technology)
- Retrieved-document visualisation (M Carey, 2000, *departmental prize*: best project)

- Information visualisation (MSc Group, 2000, *departmental prize*: best group project)
- Video search engine (M Pickering, MEng, 2000, *national prize*: Science, Engineering and Technology Award 2000 — best Computer or Computer Software Student)

Formal training

- Postgraduate qualification in 2002 from a one-year part-time postgraduate course: *Certificate of Advanced Study in Learning and Teaching, Imperial College London*

Management and administrative activities

Summary. As an EPSRC advanced research fellow between 1999 and 2004 I was neither expected, nor actually permitted by EPSRC, to participate in administrative tasks. From 2006 I held a research chair at The Open University, which meant that I had neither teaching nor teaching administration duties.

Administration

- Director for Research, Knowledge Media Institute, The Open University, 2010–
- MSc projects coordinator, Computing, Imperial College London, 2005–2006
- Role of Research Associates' Contact, Computing, Imperial College London, 2001–2006

Committee membership

- Chairs' Working Group, STEM faculty, The Open University, 2017–
- Science Research & Enterprise Committee, STEM faculty, The Open University, 2017–
- Strategy co-chair for REF 2021 in Computer Science and Informatics at the OU, 2016–
- Chair of the institutional REF Computer Science and Informatics panel at The Open University, 2011–2013; the [REF 2014 \(Research Excellence Framework\)](#), submitted in Nov 2013, is a high-profile national evaluation exercise of research at UK universities, which determines university research funding
- Research Committee of The Open University, 2011–2016
- OU Research Roadmap 2020 Advisory Group 2014
- Deans, Directors and Associate Deans and Directors for Research meetings with the Pro-vice-chancellor of Research and Scholarship, 2011–2016
- Management Board, Knowledge Media Institute, The Open University, 2007–
- Academic Self-Government (*Fachbereichsrat*), Computer Science, TU Berlin, 1996–1997

Professorial or administrative appointment panels

- Head of School appointments, The Open University, 11 Apr 2016 (internal)
- Goldsmiths, 24 Oct 2012 (external)
- The Open University, 24 Oct 2011 (internal)
- Queen Mary, Uni of London, 17 Jun 2011 (external)
- Computer Science Dept, TU Berlin, 1995 (internal)

Profession and industrial practice

Summary. On the commercial end of research dissemination, I was approached by industry to share/utilise research prototypes. This has resulted in non-disclosure and licence agreements as well as a patent via Imperial College Innovations, the commercialisation arm of Imperial College London. Most of our research prototypes are licensed as open-source software. I am committed to widespread visibility of and accessibility to our research prototypes and envisage commercialisation through parallel commercial licences and consulting.

Vice versa, I approached industry for direct support of my research, for example through CASE studentships (one with AT&T Research Cambridge and one with Yahoo Research Barcelona) or through industry-sponsored projects, eg, BT's direct sponsorship of my *Multimedia Digital Libraries* project.

I was appointed a *London Technology Network Business Fellow* from Jan 2008 to Aug 2010, to liaise with industry for the Centre for Research in Computing at The Open University.

I have become a member of several professional institutions, partly by just paying membership fees (ACM), partly by fulfilling entrance requirements (Higher Education Academy, BCS) and partly by being elected into them (EPSRC College). These memberships help me staying in touch with current developments and changes in industry.

Patent

- S Rüger and M Pickering: *Method for merging subtitles*. International patent, publication number WO 2006/038008 A1, 14 pages, 6 figures, Apr 2006

Prize-winning demonstrators at industrial expositions

- Shyamala Doraisamy and Stefan Rüger, "Content-based music retrieval with n -grams and a music-friendly interface." Silver Medal (for Computer Software category) at the Invention and New Product Exposition, INPEX 2007, 6-9 Jun 2007 at Pittsburgh, USA.
- Shyamala Doraisamy and Stefan Rüger, "Content-based music retrieval with n -grams and a music-friendly interface." Gold Medal at the Malaysia Technology Expo, MTE 2007, 29-31 Mar 2007 at Kuala Lumpur, Malaysia.

Industrial visits

- Visit to Fujitsu Ltd of Japan, Kawasaki, 1 month, Jun 1998, to work on text mining. The prototype I developed has since then been commercialised.

Formal training

- *Selling to industry*, London Technology Network, Feb 2008
- *Academic consultancy*, London Technology Network, Feb 2008
- *Intellectual property*, London Technology Network, Feb 2008
- *Risks of technology transfer*, London Technology Network, Feb 2008
- *Routes to technology transfer (corporate R&D, licencing, consulting, entrepreneurship)*, London Technology Network, Jan 2008
- *People Skills for Rapport and Positive Confrontation*, London Technology Network, Jan 2008