

Curriculum Vitae of C. Maria Keet

12 November 2021

Current position

Associate Professor
Department of Computer Science
University of Cape Town
Cape Town
South Africa

Personal Particulars

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1 Education

- PhD Computer Science (INF/01)** *KRDB Research Centre, Faculty of Computer Science, Free University of Bozen-Bolzano, Italy. Thesis: "A Formal Theory of Granularity". 1-'05/12-'07 and successfully defended in public on 28-4-2008.*
- Research student** *Database and Object Systems Group, School of Computing, Napier University, Edinburgh, Scotland, 10-'03/9-'04. Research focus: development and integration of (bio/eco-) ontologies. Included a visit to the Laboratory of Applied Ontology (LOA-CNR), Trento, Italy (funded by the LOA); Research focus: the ecological niche, 3-'04/6-'04.*
- BSc(Hons.) IT and Computing** *Department of Mathematics and Computing, Open University UK, 2-'01/3-'04. Graduated with 1st Class distinction. Thesis topic: conceptual modelling (ER and ORM) and design of an applied microbiology relational database.*
- MA Peace & Development Studies** *Department of Government and Society, University of Limerick, Ireland, 9-'02/12-'03. Graduated with a 1st class Honours. Dissertation topic: Terrorism and Game Theory.*
- MSc Microbiology (via BSc Food Science)** *Wageningen University and Research centre, the Netherlands, 9-'92/1-'98. Full title of the degree: 'MSc Food Science, free specialisation'. Areas of the three theses: food microbiology, molecular ecology of microorganisms, applied philosophy. Graduated: 1-'98.*
- Vocational training*
- Associate Diploma Course Interior Design *Portobello School Dublin/Rhodec International, 2-'00/11-'00. Portobello School Diploma in Interior Design Studies: distinction. Rhodec certification: distinction.*
- ASE LAN *Accredited Systems Engineer Local Area networks, Compaq, Dublin. Certified in 1-'00.*
- ASE NT *Accredited Systems Engineer NT and Accredited Compaq Technician (Desktop & Notebook + Server), Compaq, Dublin. Certified in 10-'99.*
- ITIL *Foundation Certificate in IT Service Management, Stichting Exin, Utrecht, the Netherlands, 6-'99.*
- MCSE *Full-time international course Microsoft Certified Systems Engineer at the Computerij Onderwijs B.V., Enschede, the Netherlands, 5-'98/9-'98. Electives: TCP/IP and Exchange Server 5.0. Certified in 9-'98.*
- Other courses *Fibre Channel, comprehensive introduction to FC, in-depth AL and in-depth fabric, Solution Technology, Dublin, 2-'01; WAN technologies, Compaq, Dublin, 4-'00; Fibre Channel/Clustering Solutions Course, Compaq, Dublin, 3-'00; Unix systems management &-concepts, AT Computing, Utrecht, the Netherlands, 7-'99; Unix introduction and administration, AT Computing, Utrecht, the Netherlands, 4-'99.*
- Preparatory Scientific Education *VWO, Strabrecht College Geldrop, the Netherlands, 9-'86/6-'92. Graduated: 6-'92.*

2 Employment and work experience

- Associate Professor** *Department of Computer Science, University of Cape Town, Cape Town, South Africa, since 10-'18.*
Activities: research, teaching (including course development, programming contest training), student thesis supervision; project acquisition and management; paper and project reviewing; administrative duties (including Language Policy Committee, communications & marketing).
- Senior Lecturer** *Department of Computer Science, University of Cape Town, Cape Town, South Africa, 1-'14/9-'18.*
Activities: research, teaching (including course development, programming contest training), student thesis supervision; project acquisition and management; paper and project reviewing; administrative duties (including Language Policy Committee, communications & marketing).
- Senior Lecturer** *School of Mathematics, Statistics, and Computer Science, University of KwaZulu-Natal, Durban, South Africa, 1-'11/12-'13.*
Activities: research, teaching (including course development) and thesis supervision; project acquisition and management, reviewing, member of the School's Higher Degrees & Research Committee, and general administrative duties and organisational activities.
- Assistant Professor** *Ricercatore a Tempo Determinato (non-tenured researcher), KRDB Research Centre, Free University of Bozen-Bolzano, Italy, 2-'08/1-'11.*
Activities: (i) research on logic-based knowledge representation in the scope of the Semantic Web focussed on bio-ontologies, granularity, conceptual modelling, and realisation of Ontology-Based Data Access; (ii) teaching, such as MSc course development and teaching, student supervision, and tutorials at summer schools; (iii) organisational activities, including coordinator KRDB seminars, reviewing, and exam committee memberships; (iv) initiation, coordination and research of the project to realise OBDA for horizontal gene transfer.
- Research Assistant** *CoCoCo/CoCoPro, KRDB Research Centre, Free University of Bozen-Bolzano, Italy, 10-'04/12-'04, 5-'05, 3-'06, and 1-'08.*
Activities: investigation into logic-based knowledge representation in the scope of the Semantic Web, focussed on bio-ontologies.
- Systems Engineer** *Employee Eurologic Systems, Dublin, Ireland, 6-'00/1-'02.*
7-'01/1-'02: Systems Integration Test Engineer, R&D department. Activities: Developing and implementing test plans for the integration testing of the 2 Gb Storage solutions (RAID in SAN/NAS), contributed to bug resolution. Contributed to the phase 1 and 2 exits of the iSCSI converter development. Involvement in the customisation, support, and training (at engineering level) for one of the major OEMs.

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| | | 6-'00/6-'01: Systems Qualification Engineer. Activities: Developing and implementing qualification test plans for the integration testing of the 1 Gb Fibre Channel storage solutions (firmware and software focussed on the RAID solutions). Contributed to bug resolution by interacting with our Product Development Departments (R&D) and suppliers. Configurations includes SANs, NAS and operating systems NT, Win2k, Red Hat Linux and NetWare. Use of in-house and proprietary analysis & debugging tools and management software. |
| Enterprise Support Engineer | | In the German Enterprise Team, <i>Compaq Computer Corporation EMEA</i> , Dublin, Ireland, 8-'99/5-'00. Activities: Troubleshooting problems and providing solutions for large business environments. Development and maintenance of the intranet-site of Engineering Support and EMEA Enterprise Support, and Minilab manager Enterprise level. |
| Network Administrator | Adminis- | Employee <i>Brunel IT</i> , Amersfoort, the Netherlands, 11-'98/7-'99. Outsourcing projects: 2-'99/7-'99: Project Employee Network dept./IT Support, Centraal Beheer, the Netherlands. Activities: Co-organization of the Electronic Software Distribution project via Tivoli, installation of its test environment and performance analysis. Process development for implementing applications, problem analysis of the Helpdesk. 11-'98/1-'99: OS/2 LANManager, Centraal Beheer, the Netherlands. Activities: Rearranging and structuring the file servers and setting up structured Access databases, investigation w.r.t. domain separation. |
| Project researcher | | Food science/human physiology at the <i>Centro Internacional de la Papa (CIP)</i> in Lima, Peru, 7-'96/1-'97. Activities: developed and implemented test protocols for <i>in vitro</i> digestibility of sweet potato, organised lab equipment and chemicals. |

3 Publications

Journal articles

1. Keet, C.M., Grütter, R. Toward a systematic conflict resolution framework for ontologies, *Journal of Biomedical Semantics*, 2021, **12**:15.
2. Fillotrani, P.R., Keet, C.M.. Evidence-based lean conceptual data modelling languages. *Journal of Computer Science and Technology*, 2021, **21**(2): 93-111.
3. Mahlaza, Z., Keet, C.M.. Formalisation and classification of grammar and template-mediated techniques to model and ontology verbalisation. *International Journal of Metadata, Semantics and Ontologies*, 2020, **14**(3): 249-262.
4. Keet, C.M.. The African Wildlife Ontology tutorial ontologies. *Journal of Biomedical Semantics*, 2020, **11**:4.
5. Fillotrani, P.R., Jamieson, S., Keet, C.M.. Connecting knowledge to data through transformations in KnowID: system description. *Künstliche Intelligenz*, 2020, **34**, 373-379.
6. Fillotrani, P.R., Keet, C.M.. KnowID: An architecture for efficient Knowledge-driven Information and Data access. *Data Intelligence*, 2020, **2**(4): 487-512.
7. Keet, C.M., Khumalo, L. Parthood and Part-Whole Relations in Zulu Language and Culture. *Applied Ontology*, 2020, **15**(3): 361-384.

8. Potoniec, J., Wiśniewski, D., Ławrynowicz, A., Keet, C.M.. Dataset of Ontology Competency Questions to SPARQL-OWL Queries Translations. *Data in Brief*, 2020, **29**: 105098.
9. Wiśniewski, D., Potoniec, J., Ławrynowicz, A. Keet, C.M.. Analysis of Ontology Competency Questions and Their Formalisations in SPARQL-OWL. *Journal of Web Semantics*, 2019, **59**: 100534.
10. Mahlaza, Z., Keet, C.M.. A method for measuring verb similarity for two closely related languages with application to Zulu and Xhosa. *South African Computer Journal*, 2019, **31**(2): 34-56.
11. Davies, K., Keet, C.M., Ławrynowicz, A. More Effective Ontology Authoring with Test-Driven Development and the TDDonto2 tool. *International Journal on Artificial Intelligence Tools*, 2019, **28**(7): 1950023.
12. Keet, C.M., Khumalo, L. Grammar rules for the isiZulu complex verb. *Southern African Linguistics and Applied Language Studies*, 2017, **35**(2): 183-200.
13. Keet, C.M., Khumalo, L. Evaluation of the effects of a spellchecker on the intellectualization of isiZulu. *Alternation*, 2017, **24**(2): 75-97.
14. Keet, C.M., Khumalo, L. Toward a knowledge-to-text controlled natural language of isiZulu. *Language Resources and Evaluation*, 2017, **51**:131-157.
15. Khan, Z.C., Keet, C.M.. ROMULUS: a Repository of Ontologies for MULTiple USes populated with foundational ontologies. *Journal on Data Semantics*, 2016, **5**(1):19-36.
16. Khan, Z.C., Keet, C.M.. An empirically-based framework for ontology modularization. *Applied Ontology*, 2015, **10**(3-4):171-195. **IOS Press prize**
17. Keet, C.M., Fillottrani, P.R. An ontology-driven unifying metamodel of UML Class Diagrams, EER, and ORM2. *Data & Knowledge Engineering*, 2015, **98**:30-53.
18. Keet, C.M., Ławrynowicz, A., d'Amato, C., Kalousis, A., Nguyen, P., Palma, R., Stevens, R., Hilario, M. The Data Mining OPTimization ontology. *Web Semantics: Science, Services and Agents on the World Wide Web*, 2015, **32**:43-53.
19. Keet, C.M., Barbour, G. Limitations of Regular Terminology Development practices: the case of the isiZulu Computing Terminology. *Alternation*, 2014, **12**:13-48.
20. Keet, C.M.. Preventing, Detecting, and Revising Flaws in Object Property Expressions. *Journal on Data Semantics*, 2014, **3**(3):189-206.
21. Keet, C.M.. Transforming semi-structured life science diagrams into meaningful domain ontologies with DiDON. *Journal of Biomedical Informatics*, 2012, **45**(3): 482-494.
22. Keet, C.M.. The granular perspective as semantically enriched granulation hierarchy. *International Journal of Granular Computing, Rough Sets and Intelligent Systems*, 2011, **2**(1):51-70.
23. Keet, C.M.. Dependencies between Ontology Design Parameters. *International Journal of Metadata, Semantics and Ontologies*, 2010, **5**(4):265-284.
24. Keet, C.M., Artale, A. Representing and Reasoning over a Taxonomy of Part-Whole Relations. *Applied Ontology – Special Issue on Ontological Foundations for Conceptual Models*, 2008, **3**(1-2):91-110.
25. Keet, C.M.. Biological Data and Conceptual Modelling Methods. *Journal of Conceptual Modeling*, Issue **29**, October 2003.
26. Keet, C.M.. Democracy in the European Union. *UL Perspectives, Journal of Political Studies*, 2003, **2**:71-80.

Book chapters

1. Khan, Z.C., Keet, C.M. Structuring Abstraction to Achieve Ontology Modularisation. *Advanced Concepts, Methods, and Applications in Semantic Computing*. Daramola, O., Moser, T. (eds.). IGI Global, 2021, pp72-92.
2. Khan, Z.C., Keet, C.M. Foundational ontology mediation in ROMULUS. In: *Knowledge Discovery, Knowledge Engineering and Knowledge Management: IC3K 2013 Selected Papers*. Fred, A., Dietz, J.L.G., Liu, K., Filipe, J. (Eds.). Springer Communications in Computer and Information Science CCIS 454, pp. 132-152. 2015.
3. Keet, C.M., Suárez-Figueroa, M.C., Poveda-Villalón, M. Pitfalls in Ontologies and TIPS to Prevent

- Them. In: *Knowledge Discovery, Knowledge Engineering and Knowledge Management: IC3K 2013 Selected papers*. Fred, A., Dietz, J.L.G., Liu, K., Filipe, J. (Eds.). Springer Communications in Computer and Information Science CCIS 454, pp. 115-131. 2015.
4. Keet, C.M.. Ontology-driven formal conceptual data modeling for biological data analysis. In: *Biological Knowledge Discovery Handbook: Preprocessing, Mining and Postprocessing of Biological Data*, Chapter 6, Mourad Elloumi and Albert Y. Zomaya (Eds.). Wiley. 2013. pp129-154.
 5. Keet, C.M.. A top-level categorization of types of granularity. In: *Novel Developments in Granular Computing: Applications for Advanced Human Reasoning and Soft Computation*. JingTao Yao (Ed.). IGI Global. 2010. pp81-117.
 6. Artale, A. and Keet, C.M.. Essential, mandatory, and shared parts in conceptual data models. In: *Innovations in Information Systems modeling: Methods and Best Practices*. IGI Global, Advances in Database Research Series, Halpin, T.A., Proper, H.A., Krogstie, J. (Eds.). 2008. pp17-52.

Conference and Workshop papers

1. Raboanary, T., Wang, S., Keet, C.M.. Generating Answerable Questions from Ontologies for Educational Exercises. *15th Metadata and Semantics Research Conference (MTSR'21)*. 29 Nov - 3 Dec, Madrid, Spain / online. Springer CCIS (in print).
2. Keet, C.M. An exploration into cognitive bias in ontologies. *Cognition And OntologieS (CAOS'21), part of JOWO'21*. 13-16 September 2021, Bolzano, Italy. Sanfilippo, E.M. et al. (Eds.). CEUR-WS vol. 2969. 17p.
3. Mahlaza, Z., Keet, C.M. ToCT: A task ontology to manage complex templates. *FOIS 2021 Ontology Showcase, part of JOWO'21*, 13-16 September 2021, Bolzano, Italy. Sanfilippo, E.M. et al. (Eds.). CEUR-WS vol. 2969. 9p.
4. Antia, M-J, Keet, C.M. Assessing and Enhancing Bottom-up CNL Design for Competency Questions for Ontologies. *7th International Workshop on Controlled Natural language (CNL'21)*, 8-9 Sept. 2021, Amsterdam, the Netherlands. ACL, 1.11.
5. Keet, C.M. Natural Language Generation Requirements for Social Robots in Sub-Saharan Africa. *IST-Africa 2021*, IST-Africa 2021 Conference Proceedings. IST-Africa Institute and IIMC Ireland. Cunningham, M. and Cunningham, P. (Eds). 10-14 May 2021, online.
6. Mahlaza, Z., Keet, C.M. OWLSIZ: An isiZulu CNL for structured knowledge validation. *3rd International Workshop on Natural Language Generation from the Semantic Web (WebNLG+)*, ACL, pp15-25. 18 Dec 2020, Dublin, Ireland.
7. Fillotrani, P.R., Keet, C.M. An analysis of commitments in ontology language design. *11th International Conference on Formal Ontology in Information Systems 2020 (FOIS'20)*. Brodaric, B and Fabian Neuhaus, F. (Eds.). IOS Press, FAIA vol. 330, 46-60. September, 2020, Bolzano, Italy.
8. Keet, C.M. The computer program as a functional whole. *11th International Conference on Formal Ontology in Information Systems 2020 (FOIS'20)*. Brodaric, B and Fabian Neuhaus, F. (Eds.). IOS Press, FAIA vol. 330, 216-230. September, 2020, Bolzano, Italy.
9. Grütter, R., Keet, C.M. Towards a Framework for Meaning Negotiation and Conflict Resolution in Ontology Authoring. *11th International Conference on Biomedical Ontologies (ICBO'20)*, 16-19 Sept 2020, Bolzano, Italy. CEUR-WS vol. 2807, D.1-12.
10. Rautenbach, J.G., Keet, C.M. Toward equipping Artificial Moral Agents with multiple ethical theories. *RobOntics: International Workshop on Ontologies for Autonomous Robotics*, co-located with BoSK'20, Bolzano. CEUR-WS vol. 2708, 5 (7 pages).
11. Mahlaza, Z., Keet, C.M. A classification of grammar-infused templates for ontology and model verbalisation. *13th Metadata and Semantics Research Conference (MTSR'19)*. 28-31 Oct 2019, Rome, Italy. Springer CCIS vol. 1057, 64-76. *Entelect 2019 Best Postgraduate Publication Award, at the computer science department at UCT*
12. Keet, C.M., Mahlaza, Z., Antia, M.-J. CLaRO: a Controlled Language for Authoring Competency Questions. *13th Metadata and Semantics Research Conference (MTSR'19)*. 28-31 Oct 2019, Rome, Italy. Springer CCIS vol. 1057, 3-15. **Best student paper award**

13. Fillotrani, P.R., Keet, C.M.. Dimensions Affecting Representation Styles in Ontologies. *1st Iberoamerican conference on Knowledge Graphs and Semantic Web (KGSWC'19)*. Springer CCIS vol. 1029, 186-200. 23-30 June 2019, Villa Clara, Cuba.
14. Gillis-Webber, F., Tittel, S., Keet, C.M.. A Model for Language Annotations on the Web. *1st Iberoamerican conference on Knowledge Graphs and Semantic Web (KGSWC'19)*. Springer CCIS vol. 1029, 1-16. 23-30 June 2019, Villa Clara, Cuba.
15. Ma, W., Keet, C.M., Oldford, W., Toman, D., Weddell, G. The Utility of the Abstract Relational Model and Attribute Paths in SQL. *21st International Conference on Knowledge Engineering and Knowledge Management (EKAW'18)*. Springer LNAI, vol. 11313, 195-211. 12-16 Nov. 2018, Nancy, France. **Best paper award**
16. Khan, ZC, Keet, C.M.. NOMSA: Automated modularisation for abstraction modules. *Proceedings of the EKAW 2018 Posters and Demonstrations Session*. Cimiano, P., Corby, O. CEUR-WS vol. 2262, 13-16. 12-16 Nov. 2018, Nancy, France. (poster paper)
17. Mahlaza, Z. Keet, C.M.. Measuring verb similarity using binary coefficients with application to isiXhosa and isiZulu. *Annual Conference of the South African Institute of Computer Scientists and Information Technologists (SAICSIT'18)*. ACM Proceedings, 65-71. September 26-28, 2018, Port Elizabeth, South Africa.
18. Keet, C.M., Khumalo, L. On the ontology of part-whole relations in Zulu language and culture. *10th International Conference on Formal Ontology in Information Systems 2018 (FOIS'18)*. Borgo, S., Hitzler, P. (Eds.). IOS Press, FAIA vol 306, 225-238. 17-21 September, 2018, Cape Town, South Africa.
19. Gilbert, N., Keet, C.M.. Automating question generation and marking of language learning exercises for isiZulu. *6th International Workshop on Controlled Natural language (CNL'18)*. Davis, B., Keet, C.M., Wyner, A. (Eds.). IOS Press, FAIA vol. 304, 31-40. Co. Kildare, Ireland, 27-28 August 2018.
20. Byamugisha, J., Keet, C.M., DeRenzi, B. Pluralizing Nouns across Agglutinating Bantu Languages. *27th International Conference on Computational Linguistics (COLING'18)*. ACL, 2633-2643. August 20-26, 2018, Santa Fe, New Mexico, USA.
21. Keet, C.M., Kutz, O. Orchestrating a Network of Mereo(topo)logical Theories: An Abridged Report. *International Joint Conference on Artificial Intelligence (IJCAI'18)*. ACM, 5289-5293. 13-19 July 2018, Stockholm, Sweden
22. Mjaria, F., Keet, C.M.. A statistical approach to error correction for isiZulu spellcheckers. *IST-Africa 2018*, P. Cunningham, M. Cunningham (Eds). IIMC International Information Management Corporation, pp1-9. 9-11 May, Botswana.
23. Keet, C.M., Kutz, O. Orchestrating a Network of Mereo(topo)logical Theories. *Proceedings of the Ninth International Conference on Knowledge Capture (KCAP'17)*, Austin, Texas, USA, December 4-6, 2017. ACM, 11:1-11:8. **Best paper award**
24. Keet, C.M.. Natural language template selection for temporal constraints. *CREOL: Contextual Representation of Events and Objects in Language, Joint Ontology Workshops 2017*, 21-23 September 2017, Bolzano, Italy. CEUR-WS Vol. 2050. 12p.
25. Keet, C.M.. A note on the compatibility of part-whole relations with foundational ontologies. *FOUST-II: 2nd Workshop on Foundational Ontology, Joint Ontology Workshops 2017*, 21-23 September 2017, Bolzano, Italy. CEUR-WS Vol. 2050, 10p.
26. Khan, Z.C., Keet, C.M.. Automatically changing modules in modular ontology development and management. *Annual Conference of the South African Institute of Computer Scientists and Information Technologists (SAICSIT'17)*. ACM Proceedings, 19:1-19:10. 26-28 September, 2017. Bloemfontein, South Africa.
27. Keet, C.M., Berman, S. Determining the preferred representation of temporal constraints in conceptual models. *36th International Conference on Conceptual Modeling (ER'17)*. Mayr, H.C., Guizzardi, G., Ma, H. Pastor. O. (Eds.). Springer LNCS vol. 10650, 437-450. 6-9 Nov 2017, Valencia, Spain.
28. Byamugisha, J., Keet, C.M., DeRenzi, B. Evaluation of a Runyankore grammar engine for healthcare

- messages. *10th International Natural Language Generation conference (INLG'17)*. Association for Computational Linguistics, pp105-113. 4-7 Sept 2017, Santiago de Compostela, Spain.
29. Keet, C.M.. Representing and aligning similar relations: parts and wholes in isiZulu vs English. *Language, Data, and Knowledge 2017 (LDK'17)*. In: Gracia J., Bond F., McCrae J., Buitelaar P., Chiarcos C., Hellmann S. (eds). Springer LNAI vol 10318, 58-73. 19-20 June, 2017, Galway, Ireland.
 30. Fillottrani, P.R., Keet, C.M.. Patterns for Heterogeneous TBox Mappings to Bridge Different Modelling Decisions. *14th Extended Semantic Web Conference (ESWC'17)*. E. Blomqvist et al. (Eds.). Springer LNCS 10249, 371-386. Portoroz, Slovenia, May 28 - June 2, 2017.
 31. Keet, C.M.. Relating some stuff to other stuff. *20th International Conference on Knowledge Engineering and Knowledge Management (EKAW'16)*. Blomqvist, E., Ciancarini, P., Poggi, F., Vitali, F. (Eds.). Springer LNAI vol. 10024, 368-383. 19-23 November 2016, Bologna, Italy.
 32. Keet, C.M., Chirema, T. A model for verbalising relations with roles in multiple languages. *20th International Conference on Knowledge Engineering and Knowledge Management (EKAW'16)*. Blomqvist, E., Ciancarini, P., Poggi, F., Vitali, F. (Eds.). Springer LNAI vol. 10024, 384-399. 19-23 November 2016, Bologna, Italy.
 33. Khan, Z.C., Keet, C.M.. Dependencies between modularity metrics towards improved modules. *20th International Conference on Knowledge Engineering and Knowledge Management (EKAW'16)*. Blomqvist, E., Ciancarini, P., Poggi, F., Vitali, F. (Eds.). Springer LNAI vol. 10024, 400-415. 19-23 November 2016, Bologna, Italy.
 34. Keet, C.M., Khumalo, L. On the verbalization patterns of part-whole relations in isiZulu. *9th International Natural Language Generation conference (INLG'16)*, September 5-8, 2016, Edinburgh, UK. Association for Computational Linguistics, 174-183.
 35. Byamugisha, J., Keet, C.M., DeRenzi, B. Tense and Aspect in Runyankore using a Context-Free Grammar. *9th International Natural Language Generation conference (INLG'16)*, September 5-8, 2016, Edinburgh, UK. Association for Computational Linguistics, 84-88.
 36. Sanby, L., Todd, I., Keet, C.M.. Comparing the template-based approach to GF: the case of Afrikaans. *2nd International Workshop on Natural Language Generation and the Semantic Web (WebNLG'16)*. Gardent, C., Gangemi, A. (Eds.). Association for Computational Linguistics, 50-53. September 6, 2016, Edinburgh, Scotland.
 37. Khan, Z.C., Keet, C.M., Fillottrani, P.R., Cenci, K.M. Experimentally motivated transformations for intermodel links between conceptual models. *20th Conference on Advances in Databases and Information Systems (ADBIS'16)*. J. Pokorný et al. (Eds.). Springer LNCS vol. 9809, 104-118. August 28-31, Prague, Czech Republic.
 38. Byamugisha, J., Keet, C.M., DeRenzi, B. Bootstrapping a Runyankore CNL from an isiZulu CNL. *5th Workshop on Controlled Natural Language (CNL'16)*, Springer LNAI vol 9767, 25-36. 25-27 July 2016, Aberdeen, UK. **Best student paper award** (Byamugisha)
 39. Ławrynowicz, A., Keet, C.M.. The TDDonto Tool for Test-Driven Development of DL Knowledge bases. *29th International Workshop on Description Logics (DL'16)*. Peñaloza, R. and Lenzerini, M. (Eds.). CEUR-WS Vol. 1577. April 22-25, Cape Town, South Africa.
 40. Keet, C.M., Ławrynowicz, A. Test-Driven Development of Ontologies. *13th Extended Semantic Web Conference (ESWC'16)*. H. Sack et al. (Eds.). Springer LNCS vol. 9678, 642-657. 29 May - 2 June, 2016, Crete, Greece.
 41. Ndaba, B., Suleman, H., Keet, C.M., Khumalo, L. The Effects of a Corpus on isiZulu Spellcheckers based on N-grams. *IST-Africa 2016*. Paul Cunningham and Miriam Cunningham (Eds). IIMC International Information Management Corporation. May 11-13, 2016, Durban, South Africa.
 42. Byamugisha, J., Keet, C.M., Khumalo, L. Pluralising Nouns in isiZulu and Related Languages. *17th International Conference on Intelligent Text Processing and Computational Linguistics (CI-CLing'16)*, Springer LNCS 9623, 271-283. April 3-9, 2016, Konya, Turkey. **Software & reproducibility award**
 43. Msosa, Y.J., Keet, C.M., Densmore, M. Characterisation of Clinical Practice Guideline Changes. *HEALTHINF 2016*, Rome, Italy. SCITEPRESS

44. Khan, Z.C., Keet, C.M.. Toward a framework for ontology modularity. *Annual Conference of the South African Institute of Computer Scientists and Information Technologists (SAICSIT'15)*, 28-30 September 2015, Stellenbosch, South Africa. ACM Proceedings.
45. Chavula, C. Keet, C.M.. An Orchestration Framework for Linguistic Task Ontologies. *9th Metadata and Semantics Research Conference (MTSR'15)*. Garoufallou, E. et al. (Eds.). Springer CCIS vol. 544, 3-14. 9-11 September, 2015, Manchester, UK.
46. Fillotrani, P.R., Keet, C.M.. Evidence-based Languages for Conceptual Data Modelling Profiles. *19th Conference on Advances in Databases and Information Systems (ADBIS'15)*. Morzy et al. (Eds.). Springer LNCS vol. 9282, 215-229. Poitiers, France, Sept 8-11, 2015.
47. Keet, C.M., Fillotrani, P.R. An analysis and characterisation of publicly available conceptual models. *34th International Conference on Conceptual Modeling (ER'15)*. Johannesson, P., Lee, M.L. Liddle, S.W., Opdahl, A.L., Pastor López, O. (Eds.). Springer LNCS vol 9381, 585-593. 19-22 Oct, Stockholm, Sweden.
48. Fillotrani, P.R., Keet, C.M., Toman, D. Polynomial encoding of ORM conceptual models in $CFDI_{nc}^{\forall}$. *28th International Workshop on Description Logics (DL'15)*, Calvanese, D. and Konev, B., (Eds.). CEUR-WS vol. 1350, pp 401-414. 7-10 June 2015, Athens, Greece.
49. Keet, C.M.. An Experiment with Peer Instruction in Computer Science to Enhance Class Attendance. *23rd Annual Meeting of the Southern African Association for Research in Mathematics, Science, and Technology Education (SAARMSTE'15)*, Huillet, E. (Ed.), pp319-331. 13-16 January 2015, Maputo, Mozambique.
50. Khan, Z.C., Keet, C.M.. SUGOI: Automated Ontology Interchangeability. *Knowledge Engineering and Knowledge Management: EKAW 2014 Satellite Events*. Lambrix, P., Hyvönen, E., Blomqvist, E., Presutti, V., Qi, G., Sattler, U., Ding, Y., Ghidini, C. Springer Lecture Notes in Artificial Intelligence LNAI vol. 8982, 150-153.
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3. Buthelezi, T., Keet, C.M. Isihloko: Izindlela ezimkhakhamningi neziqhakambisa umphakathi ekwakhweni kwamagama esiZulu semfundo emkhakheni weSayensi YeKhompyutha neminye encike kuwo. *18th Annual African Language Teachers Association (ALTA) Conference*, April 24-27, 2014, Chicago, USA. (abstract, with full presentation)
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4. *ROMULUS: Repository of Ontologies for MULTiple USes*; with Zubeida Khan, 2013. For details, see our MEDI'13 paper (ref. 62), KEOD'13 paper (ref. 65), and KCAP'13 poster/demo (ref. 5). Online: <http://www.thezfiles.co.za/ROMULUS/>.
5. *ONSET: foundational ONtology Selection and Explanation Tool*; with Zubeida Khan, 2011/2012. See our EKAW'12 paper for details (ref. 69). Online: <http://www.meteck.org/files/onset/>.
6. *ONTOPARTS: Ontology-inspired Part-whole Selection*; with Francis Fernández-Reyes and Annette Morales-González. See our ESWC'12 paper (ref. 70) and demo description (ref. 7) for details. Online: <http://www.meteck.org/files/ontopartssup/supindex.html>. Followed-up with ONTOPARTS-2 in the FORZA method and integrated in MoKi; see our CIKM'13 paper (ref. 60) for details.
7. *WONDER: Web ONtology mediateD Extraction of Relational data*; with Diego Calvanese, Werner Nutt, Mariano Rodríguez-Muro, and Giorgio Stefanoni. See our ACM SAC'10 paper for details (ref. 80). Online: <http://wonder.inf.unibz.it/WONDER/>.

Translation

1. *The nonviolent personality*. 2011. Translated from the Italian original *La personalità nonviolenta* written by Giuliano Pontara.

4 Teaching

Courses

- *Ontology engineering*, at various levels and universities:
 - Ontology engineering (CSC5028Z), MSc in CS course at UCT, 2019-present, ± 5-10 students
 - Ontology engineering, 4th year BSc in CS honours module at UCT, 2014-2017, ± 20-30 students
 - Foundations and recent trends on ontology engineering, Erasmus Mundus Master's Programme in Information Technologies for Business Intelligence (IT4BI)/Erasmus Mundus Joint Master Degree Programme in Big Data Management and Analytics (BDMA). Universitat Politècnica de Catalunya, Barcelona, Spain. 2017. 1 ECTS
 - Ontologies and Knowledge Bases (COMP720 [formerly COMP718]), 2011-2013, 4th year BSc in CS honours course, 16 credits, UKZN ±15 students
 - Introduction to ontology engineering, with emphasis on Semantic Web Technologies; part of the Masters Ontology Winter School 2010, 16-30 July, Meraka Institute, South Africa; 15+7 hours lectures and labs.
 - Introduction to Ontology Engineering: Foundations and applications, 5-15 July 2010, Universidad de las Ciencias Informáticas, Cuba; 20+10 hours lectures and labs.
 - Comprehensive introduction to ontology engineering, 5-16 April 2010, MSc-level, Universidad de la Habana, Cuba; 20+10 hours lectures and labs.
 - Semantic Web Technologies, part 2; 2009/2010, MSc-level (part of the European Masters in Computational Logic), 4 ECTS, FUB.
- *Theory of Computation* (part of CSC3003S), 3rd-year students, semester 2, 2021-present. ±200 students.
- *Social Issues and Professional Practice (Ethics)* (part of CSC1016S), 1st-year students, semester 2, 2016-present. ±500 – 700 students.
- *Social Issues and Professional Practice (Ethics)* (CSC5014Z), MSc in IT conversion masters, UCT, 2018-present. ± 10-15 students.
- *Database Systems* (CSC5013Z), MSc in IT conversion masters, UCT, 2021-present. ± 10-15 students.
- *Compilers I* (CSC4021Z), 4th year BSc in CS honours module at UCT, 2019-2020, ± 60-70 students.
- *Research methods* (part of CSC4019Z), 4th year BSc in CS honours module at UCT, 2019, ± 60 students.
- *Networks* (part of CSC3002F, 3rd year BSc in CS module at UCT, semester 1, 2014-2017. ±100 students.
- *Networks* (MSc in IT conversion masters, UCT), semester 1, 2014-2017. ±15 students.
- *Database Systems* (COMP306), 2012-2013, 3rd year BSc module, 16 credits, UKZN. ±30 students
- *Computing for Natural Scientists* (COMP106), 2013. ±200 students
- *Theory of Computation* (COMP314), 2011-2012, 3rd year BSc core module, 16 credits, UKZN. ±70 students
- *Logic*, 2007/2008, BSc-level, 4 ECTS, FUB, as Teaching Assistant, labs and midterm.
- CS2 Course convenor (CSC2001F, CSC2002S, CSC2004Z, CSC2005Z—about 300 CS2 students), 2020-present; Introduction to computer science (CSC1015F, CSC1017F, CSC1016S) in 2015-2017, ±800 and ±500 students; (CSC1010H, CSC1011H), 2019, ±100 and ±50 students.

Tutorials and short lecture series (UCT and elsewhere)

- *Research statistics*, part of the Postgraduate Research Methods course, Department of Computer Science, UCT; 2015-2017, 2019-present.
- *Coach programming contests*. Training ICPC World Finals' UCT teams and aspiring finalists for the ICPC Southern Africa regionals, UCT; 2014-2017, 2019-present.
- *Semantics and conceptual data modelling*. International School on Applied Ontology (ISAO'18), Cape Town, 10-15 September, 2018.
- *NLP for African (Nguni) languages*. Guest lecture 3rd year BSc in CS NLP course, Poznań University of Technology, Poznań, Poland, 10 April 2018.
- *Representing and reasoning over relationships in ontologies*. Forum on AI Research (FAIR'14), Stellenbosch, South Africa, 3-5 December, 2015.
- *Introduction to technical writing*. Tutorial at the Honours students Research Methods Seminar, University of KwaZulu-Natal, Durban, South Africa, d.d. 6 June 2012.
- *Top-down Ontology Development*. Guest Lecture of the Ontology and Knowledge Based Systems fourth year (honours) course, University of KwaZulu-Natal, Durban, South Africa, d.d. 17-18 August 2010.
- *Representing and reasoning over a taxonomy of part-whole relations*. Mini Ontology Winter School (MOWS 2008), Knowledge System Group, Meraka Institute, 1-11 July 2008, Pretoria, South Africa.
- *Semantic Web for the Life Sciences*. Tutorial d.d. 23-5-2007 as part of the course 'Semantic Web Technologies' (course code: 70175, MSc-level), Free University of Bozen-Bolzano, Italy.
- *Introduction to part-whole relations: mereology, conceptual modelling and mathematical aspects*. Tutorial given on 23-10-2006 at the KRDB Research Centre, Free University of Bozen-Bolzano, Italy.

Postgraduate student supervision

Current postgraduate students:

- Mary-Jane Antia (PhD Student; supervisor; 2019-)
- Frances Gillis-Webber (PhD Student; supervisor; 2019-)
- Toky Raboanary (PhD Student; supervisor; 2019-)
- Zola Mahlaza (PhD Student; supervisor; 2018-submitted)
- Leighton Dawson (MSc student; supervisor; 2020-)
- Jacques de Lange (M. IT student; supervisor, 2021-)
- Kyle Seakgwa (M. IT student; supervisor; 2021-)

Graduated postgraduate students:

- Joan Byamugisha (PhD (CS); 2015-2019)
- Yamiko Msosa (PhD (CS); 2014-2018)
- Zubeida Khan (PhD (CS); 2014-2017)
- Sindiso Nleya (PhD (CS); 2014-2016)
- Zola Mahlaza (MSc (CS), 2016-2017)
- Trésor Mvumbi (MSc (CS); 2014-2016)
- Nasubo Ongoma (MSc (CS), 2013-2014); cum laude
- Zubeida Khan (MSc (CS); 2012-2013); cum laude
- Cameron Kyle (M. IT; 2017-2018)
- Tamindran Shunmugam (M. IT; 2014-2016)

Graduated BSc/BSc honours project students:

- Kouthar Dollie (2020), Carryn Joseph (2020), Alec Badenhorst (2020), Umar Khan (2020), Mandisa Baleni (2020), Bradley Malgas (2020), Alka Baijnath (2019), Jordy Chetty (2019), Micara Marajh (2019), Kyle Robbertze (2019), Steve Wang (2019), Nthabiseng Mashiane (2017), Frida Mjaria (2017), Siseko Neti (2017), Soham Singh (2017), Nikhil Gilbert (2017), Kgotso Nkosi (2017), Kieren Davies (2016), Ameerah Allie (2016), Lauren Sanby (2015), Ion Todd (2015), Victor Kabine (2015), Dylan Henderson (2015), Luqmaan Salie (2015), Ngonidzashe Choga (2015), Alex Hall

(2014), Matthew Welham (2014), Asive Dlaba (2013), Siyabonga Madlala (2013), Zubeida Khan (2011), Giorgio Stefanoni (2009)

Co-authored publications resulting from BSc/BSc(Hons)/MSc student projects and dissertations:

- Generating Answerable Questions from Ontologies. Student: Steve Wang (BSc(hons)). Paper no. 1 (MTSR'21).
- An architecture for language learning exercises for isiZulu. Student: Nikhil Gilbert (BSc(hons)). Paper no. 19 (CNL'18).
- IsiZulu spellchecker–error corrector. Student: Frida Mjaria (BSc(hons)). Paper no. 22 (IST-Africa'18).
- Test-driven development. Student: Kieren Davies (BSc(hons)). Papers: IJAIT Journal article (no. 11) and an earlier ESWC'17 P&D track demo paper (no. 1).
- Comparing template-based to GF-based NLG. Students: Lauren Sanby and Ion Todd (BSc(hons)). Paper no. 36 (WebNLG'16).
- IsiZulu spellchecker–error detector. Student: Balone Ndaba (BSc(hons)). Paper no. 41 (IST-Africa'16).
- Logic-based temporal conceptual data models with temporal attributes (MSc). Student: E.A. Nasubo Ongoma. Paper nos. 55 (DL'14) and 51 (APCCM'15).
- Extending ontology development methodologies with foundational ontologies with ONSET (BSc) and Foundational ontology interchangeability with ROMULUS (MSc). Student: Zubeida Khan. Paper nos. 69 (EKAW'12), 65 (KEOD'13), 62 (MEDI'13), and poster/demo paper (paper no. 5 (KCAP'13)).
- Web ontology mediated extraction of relational data. Student: Giorgio Stefanoni, BSc thesis. Paper: conference paper no. 80 (ACM SAC'10).
- MSc thesis: Functional dependencies, keys and explicit functions in OWL ontologies. Student: Jean-Paul Calbimonte. Paper: conference paper no. 82 (SBB'D'09).

Examinations

- External Examiner (PhD thesis), Universidad Nacional Del Sur, Bahía Blanca, Argentina, 2019.
- External Examiner (MSc thesis), Macquarie University, Sydney, Australia. 2019.
- External Examiner (MSc thesis), Tshwane University of Technology, South Africa. 2013.
- External Examiner (MSc thesis), LBD EPFL, Switzerland. 2007.
- Internal Examiner (MSc thesis), University of Cape Town, South Africa, 2014.
- Member FUB CS PhD Committee (Collegio di Docenti), 7-'08/12-'10.
- Member FUB Examination Commission of the BSc and MSc degrees in Computer Science, 2008/2009.
- Reviewer CS Honours projects, UKZN (2011-2013).
- Second Reader CS Honours projects, Masters theses, PhD proposals UCT (2014-).

5 Awards

- 2021 UCT Open Textbook Award, for the textbook “An Introduction to Ontology Engineering”.
- Best Student Paper Award at the 13th Metadata and Semantics Research Conference (MTSR'19) for the paper entitled “CLaRO: a Controlled Language for Authoring Competency Questions”, co-authored with Zola Mahlaza and Mary-Jane Antia (the student authors).
- Best Paper Award at the 21st International Conference Knowledge Engineering and Knowledge management (EKAW'18) for the paper entitled “The Utility of the Abstract Relational Model and Attribute Paths in SQL”, with Weicong (Vivi) Ma, Wayne Oldford, David Toman, and Grant Weddell.
- Best Paper Award at the 9th International Conference on Knowledge Capture (K-CAP'17) for the paper entitled “Orchestrating a Network of Mereo(topo)logical Theories”, with Oliver Kutz.
- First Prize “Verifiability, Reproducibility and Working Description Award” at the 17th International Conference on Intelligent Text Processing and Computational Linguistics (CICLing'16) for the code and datasets of the paper entitled “Pluralising Nouns in isiZulu and Related Languages”, with Langa Khumalo and Joan Byamugisha.

- IOS Press Prize for the paper in the 10th anniversary special issue of Applied Ontology, entitled “An empirically-based framework for ontology modularization”, with Zubeida Khan.
- Best Research Paper Award at the 18th International Conference on Knowledge Engineering and Knowledge Management (EKAW’12) for the paper entitled “Detecting and Revising Flaws in OWL Object Property Expressions”.
- First paper award, Agropecuaria Conference (Interjoven 2004), San Jose de las Lajas, Cuba, June 2004.
- Best Society Award from the University of Limerick for the Irish Peace Society (when I held the position of chairperson), 2003.
- National Merit Award from School and University Internet Awards (SUIA) for the Irish Peace Society’s website www.peace.ie (when I held the position of Webmaster), 2003.

6 Funded projects

- Principal Investigator of the project entitled *MoRe NL: foundations of a Modular Realisation Engine for Nguni Languages*, funded by the NRF under the Competitive Programme for Rated Researchers (CPRR). Project duration: 2020-2022 (3 years)
- Erasmus+ funding with Poznan University of Technology (2020-2021)
- Principal Investigator of the project entitled *Quest: Querying Smart Text*, funded by SADiLaR. Project duration: 2019-2020 (6 months).
- Project leader of a grant to improve on the “An introduction to Ontology Engineering” textbook, funded by the *Digital Open Textbooks for Development* project at UCT. Project duration: 2019-2020 (1 year + 0.5 year).
- Co-Investigator of the project *Medical Machine Translation*, in collaboration with the University of Edinburgh (with Dr. Kenneth Heafield, Dr. Lexi Birch), UK, funded by the EPSRC, UK. Project duration: 2017-2018 (7 months)
- Principal Investigator of the project entitled *A Grammar engine for Nguni natural language interfaces (GeNi)*, funded by the NRF under the Competitive Programme for Rated Researchers (CPRR) – Y-rated development grant. Project duration: 2015-2017 (3 years).
- Principal Investigator of the project entitled *Foundations for Nguni natural language generation systems*, UCT Science Faculty Launching Grant. Project duration: 2014-2017 (3 years).
- External collaborator in the project entitled *ARISTOTELES: Methodology and algorithms for automatic revision of ontologies in task based scenarios*, funded by the Polish National Science Center under the SONATA program, with PI Dr. Agnieszka Ławrynowicz, Poznan University of Technology, Poland. 2015-2018.
- Project leader of the ‘Teaching with Technology’ Centre for Innovation in Learning and Teaching (CILT)-funded project on the development of a software-based audience response system. Project duration: 2015 (1 year).
- Project leader of the ‘Open Educational Resources’ Centre for Innovation in Learning and Teaching (CILT)-funded project on the development of a Semantic Wiki for ontology engineering. Project

duration: 2015 (1 year).

- Principal Investigator on *COMMUTERM: Self-sustaining community-driven online terminology development*, funded by the University of KwaZulu-Natal's University Language Board. Project duration: 2013-2014 (1 year).
- Principal Investigator on the South African side of the DST/MINCYT-funded bi-lateral South Africa/ Argentina Joint Science and Technology Research cooperation project with Argentina, entitled *Ontology-driven unification of conceptual data modelling languages*, with Prof. Pablo Fillottrani at Universidad Nacional del Sur, Bahía Blanca, as Argentinian PI. Project duration: 2012-2015 (3 years).
- Participation (external expert, as ontologist) in the EU FP7 collaborative project *e-LICO: An e-Laboratory for Interdisciplinary Collaborative Research in Data Mining and Data-Intensive Science*. Project duration: 2009-2012.
- Participation (researcher) in the Marie Curie action funded by the EC under ICT Call 3 FP7-PEOPLE-2009-IRSES on a *Network for Enabling Networked Knowledge (NET2)*. Project duration: 2010-2012.
- Participation (researcher) in the Italy - South Africa collaboration project *Technologies for Conceptual Modelling and Intelligent Query Formulation*, within the Executive Programme of Scientific and Technological Co-Operation between the Italian Republic and Republic of South Africa 2008-2010; Coordinators Prof. Enrico Franconi (Italy) and Dr. Thomas Meyer (South Africa). Project duration: 2008-2010.
- Participation (tester and report writing) in the *EU FP6 FET TONES Project* on Ontology-Based Data Access for databases in the subject domain of people with disabilities and of horizontal gene transfer. Project duration: 2006-2008.

Visiting researcher

- University of Waterloo, Waterloo, Canada. Late June-mid July 2018.
- Poznań University of Technology, Poznań, Poland; April 2018.
- Universitat Politècnica de Catalunya, Barcelona, Spain, June 2017, invited Erasmus Mundus Prof. on the Erasmus Mundus Master's Programme in Information Technologies for Business Intelligence (IT4BI)/Erasmus Mundus Joint Master Degree Programme in Big Data Management and Analytics (BDMA).
- Departamento de Ciencias e Ingeniería de la Computación, Universidad Nacional del Sur, Bahía Blanca, Argentina, July 2012 and April 2014 (DST/MINCYT-funded project).
- Knowledge Representation and Reasoning, CSIR-Meraka, Pretoria, South Africa. Late July-Mid Sept 2010. (SA-IT and Net2-funded project)
- Universidad de Ciencias Informáticas, La Habana, Cuba. Late June-Mid July 2010.
- Departamento de Programación, Universidad de la Habana, Cuba, April 2010.
- Knowledge Systems Group, Meraka institute, Pretoria, South Africa. July-August 2008. (SA-IT funded project)
- Laboratory for Applied ontology (LOA-CNR), Trento, Italy, Feb-April 2004.

7 Seminars and Presentations

Keynote talks

- Ontology verbalisation for African languages. Business Intelligence & Semantic Web Colloquium, Yaoundé, Cameroon, 2 December 2019.
- More Effective Ontology Authoring with Test-Driven Development. Keynote at the PhD symposium of the Future SOC workshop. HPI, Potsdam, Germany, 18 April, 2018.
- Toward Test-Driven Development for Ontologies. OWLED-ORE 2016, 20 November, 2016, Bologna, Italy.

Invited talks

- Resolving and avoiding design conflicts in ontology development and deployment. International Society for Computational Biology academy (ISCB academy). 21 Sept 2021.
- NLP for African languages. AFIRM 2020 summer school, 27-31 January 2020.
- More Effective Ontology Authoring with Test-Driven Development. Universidad de las Ciencias Informáticas, La Habana, Cuba, 8 June 2018.
- Designing an appropriate logic for conceptual modelling languages. Workshop on Logic, Algebra and Category Theory (LAC 2018), La Trobe University, Melbourne, Australia, 12-16 February, 2018.
- Toward interoperability with DLs for evidence-based conceptual modeling language profiles. KRDB Research Centre, Free University of Bozen-Bolzano, Italy, 28 October, 2015.
- Advantages of a PhD from UniBz in starting an academic career. Research career planning and international cooperation, at the Free University of Bozen-Bolzano, Italy, October 27, 2015.
- On the unification of conceptual data modelling languages. Seminar at the Department of Computer Science, Poznan University of Technology, Poland, 16 June 2015.
- An ontology-driven unifying metamodel for UML class diagrams, EER, and ORM2. Dagstuhl seminar 13211 ‘Automated reasoning on conceptual schemas’, 20-24 May 2013.
- Semantic Computing with the WONDER System: Implementation, Challenges and Opportunities for Curriculum Development. University of South Africa, South Africa, 8 September 2010.
- Engineering rough ontologies. University of the Witwatersrand, Johannesburg, South Africa, 26 August 2010.
- Temporal Constraints on Part-Whole Relations. Universidad de las Ciencias Informáticas, La Habana, Cuba, 20 April 2010.
- Desarrollo de ontologías como un nivel de abstracción de las bases de datos relacionales. Department of Informatics, Universidad de la Habana, Cuba, 19 April 2010.
- Logic-based ontologies of environments. Locating Biology, Dagstuhl Workshop, February 2010.
- Representing and Reasoning over a Taxonomy of Part-Whole Relations. 10 September 2009, DERI Galway, Ireland.
- Specifying and coordinating abstractions by taking advantage of granularity. Complex Systems & Artificial Intelligence Research Centre, DISCo, University of Milano-Bicocca, 28 April 2009, Milan, Italy.
- Games tegen terrorisme en voor conflict-oplossing—Speltheoretische onderhandelingen met coalities van gekwetste groepen en de regering. Gaming for War or Peace: ICT voor Wereldvrede Symposium, Stichting Vredescentrum Eindhoven (Peace Center Eindhoven), 4 November 2008, Eindhoven, the Netherlands.
- A formal comparison of conceptual data modeling languages—A prelude to intelligent CASE tools. Seminar given on July 17, 2008, at the KSG group, Meraka Institute, Pretoria, South Africa.
- A theory of granularity. Agromatica, Instituto de Ciencia Animal, 21 May 2008, San José de las Lajas, Habana, Cuba.
- On modelling and formally representing granularity. Fondazione Bruno Kessler (ITC-IRST), 3 December 2007, Trento, Italy.
- Europeanization of education. International Workshop on the Impact of EU Education Policy and Educational System Reforms on Youth and Society, 29/30 March 2006, Brussels, Belgium. *keynote speech*
- Using bio-ontologies in RDBMSs for querying granular information. Bioinformatics, Ontologies and

databases Seminar day 13-2-2006 (SBIOLBD'06), LBD, EPFL, Lausanne, Switzerland.

- Data and ontology integration issues in the biosciences. Seminar given on 23-8-2004 at the Micro-Array Department, Integrative Bioinformatics Unit, University of Amsterdam, The Netherlands.

Other talks (selection)

- Test-Driven Development of ontologies. Computer Science Department, University of Cape Town, South Africa, May 26, 2016.
- Toward isiZulu Natural Language Generation. Computer Science Department, University of Cape Town, South Africa, June 12, 2014.
- Toward an ontology-driven unifying metamodel for UML class diagrams, EER, and ORM2. Presentation given at the Ontology and Conceptual Modelling Workshop, Tshwane (Pretoria), South Africa, d.d. 15-16 Nov, 2012.
- Ontology-driven formal conceptual data modelling for biological data analysis. Presentation given at the Research Session of the Masters Artificial Intelligence spring School 2011 (MAIS'11), Durban, South Africa, d.d. 27 Sept., 2011.
- Ontology engineering with rough concepts and vague instances. KRDB Lunch Seminar, d.d. 15 June 2010.
- Comparing and unifying industry-grade conceptual data modelling languages. KRDB Lunch Seminar, d.d. 2 December 2008.
- Ontological and logical aspects of part-whole relations. KRDB Lunch Seminar series, 19 February 2008.
- Current characteristics and historical perspective on 'CS and IT with/for Biology'. Presentation given on 20-10-2005 at the KRDB Research Centre, Free University of Bozen-Bolzano, Italy.
- ORM introduction. Seminar given on 27-4-2004 at the Laboratory of Applied Ontology, Trento, and Free University Bolzano/Bozen, Italy.

- Presentation of accepted papers at conferences and workshops: Interjoven04, MIE05, DILS05, ORM05, KWEPSY06, WSPI06, GrC06, ORM06, OWLED07, SeS07, AI*IA07, DL07, GrC07, DL08, WORM08, EMMSAD08, KR08, OWLED08, Geomatics09, RST09, GrC09, MTSR09, ORM09, AI*IA09, DL10, EKAW10, ORM10, ESWC'11, AFRICON'11, SAICSIT'11, ESWC'12, OWLED'12, EKAW'12, SAARMSTE'13, K-CAP'13, KEOD'13, MEDI'13, ER'13, RuleML'14, OWLED'14, EKAW'14, SAARMSTE'15, ADBIS'15, SAICSIT'15, ER'15, DL'16, ESWC'16, ADBIS'16, INLG'16, WebNLG'16, EKAW'16, ESWC'17, LDK'17, CREOL'17, FOUST-II'17, IST-Africa'18, CNL'18, FOIS'18, KGSWC'19, MTSR'19, FAIR'19, ICBO'20, IST-Africa'21, FOIS'20, CAOS'21.

8 Organisational activities, admin, and reviewing

Conference/Workshop Chair

- PC Chair (with Valentina Presutti) of the "Resources" track of the International Semantic Web Conference 2022.
- Chair (with Pinar Yolum) of the Demo track of IJCAI 2021.
- PC Chair (with Michel Dumontier) of EKAW 2020.
- PC Chair (with Fabrizio Sebastiani and Tanya Berger-Wolf) of the AFIRM 2020 summer school.
- PC Chair (with Abraham Bernstein) of the 3rd "Outrageous Ideas" track of the International Semantic Web Conference 2019.
- Chair (With Brian Davis, Adam Wyner) of the 6th Workshop on Controlled Natural Language, Maynooth, Ireland, 27-28 August, 2018.
- Local Chair of the 4th International School on Applied Ontology, 10-15 September 2018, Cape Town, South Africa.

- Local Chair 10th International Conference on Formal Ontologies in Information Systems (FOIS 2018), Cape Town.
- PC Chair (with Zena Wood) 3rd International School on Applied Ontology, June 27 - July 2, 2016, Bolzano, Italy.
- Chair (with Diego Calvanese, Alfredo Cuzzocrea) of the 2nd Workshop on Logics and Reasoning for Conceptual Models, April 21, 2016, Cape Town, South Africa. Co-located with DL'16 and KR'16.
- Local Chair of the Forum on AI Research 2015 (FAIR'15). UCT, Cape Town, March 2015.
- PC Chair (with Valentina Tamma) of the 11th OWL: Experiences and Directions workshop (OWLED'14), 17-18 October, 2014, Riva del Garda, Italy
- Track Chair (with Jerome Euzenat) on "Ontologies, Metadata, and Vocabularies" of the Extended Semantic Web Conference (ESWC'14), Crete, Greece, May 2014. (ISI-indexed conference)
- PC co-Chair of the "Logics and Reasoning for Conceptual Models", December 14, 2013, co-located with LPAR-19.
- Main organiser of the Masters Artificial Intelligence spring School 2011 (MAIS'11), Durban, South Africa (26-30 Sept. 2011).
- PC co-Chair of the KRDB PhD Workshop, 11 May 2007, KRDB Research Centre, Free University of Bozen-Bolzano. (with Mariano Rodríguez).

Other organisational activities and university committee membership

- Employment Equity representative, UCT; June 2017-present.
- Member (Dean's nominee) of the Senate Language Policy Committee, UCT; July 2016-present (re-appointed for a second term in 2020).
- Member of the Faculty of Science Research Committee, UCT; 2020-present.
- Member of the departmental subcommittee on transformation; 2017-present.
- Member of the Executive Council of the International Association for Ontology and its Applications. 2019-2020.
- Member of the Faculty committee on Communications and Marketing, UCT; April 2016-December 2018.
- Chair (with Zena Wood) of the Technical Committee on Education of the International Association for Ontology and its Applications. July 2014-2018.
- Student competitions (Coach ACM International Collegiate Programming Contest and Standard Bank IT Challenge, 2014-present), UCT (Feb. 2014-present), Olympiad Liaison, 2014.
- Member of the Higher Degrees & Research Committee, School of Mathematics, Statistics, and Computer Science, UKZN (March 2012-Dec. 2013).
- Library Liaison for CS, UKZN (June 2011-March 2012).
- Responsible person for the KRDB seminars (10-'07/3-'10).
- Co-organiser KRDB Seminar Series 2006, KRDB Research Centre, Free University of Bozen-Bolzano. (with Rosella Gennari).
- Organiser CS and IT with/for Biology, Seminar Series at the KRDB Research Centre, Free University of Bozen-Bolzano. Oct-Dec 2005 (with Enrico Franconi).
- Academic organisational and managerial activities in the capacity of student representation:
 - PhD Students' representative at the Faculty of Computer Science, Free University of Bozen-Bolzano, 11-'06/1-'08.
 - Student member of the Executive Committees of the Education Institute Food Technology and Nutrition at the Wageningen Agricultural University, the Netherlands, 6-'97/1-'98.
 - Student member of the Cluster of the Departments Food Technology and Human Nutrition, at the Wageningen Agricultural University, the Netherlands, 10-'95/7-'96.
 - Elected Member of the Faculty/University Council of the Wageningen Agricultural University on behalf of the Progressive Student Fraction (fulltime). Committee member of Research & Education and the Commission Student Affairs (of which the latter as vice-chairperson). 9-'94/9-'95.

- Other activities (selection):
 - Project proposal writing experience as initiator, PI, WP leader, and contributor.
 - Webmaster: LRCM'16, MAIS'11, CS PhD students website (with Mariano Rodríguez), Professors without Borders (4-'06/12-'10), Irish Peace Society (10-'02/10-'04).
 - Member of the World Wide Web Consortium's Health Care & Life Sciences Special Interest Group (W3C HCLS IG) <http://www.w3.org/2001/sw/hcls/> (active participant from 2005 to 2007)

Program Committee member and reviewing for journals

- PC member:
 - International Semantic Web Conference (ISWC'14, ISWC'15, ISWC'17, ISWC'19, ISWC'21)
 - TheWebConf (formerly WWW) 2020, 2021
 - International Conference on Formal Ontology in Information Systems (FOIS'16, FOIS'18, FOIS'20, FOIS'21)
 - Pacific-Rim Conference on Artificial Intelligence (PRICAI'19, PRICAI'21)
 - International Workshop on Controlled Natural Language (CNL'21)
 - 28th International Workshop on Description Logics (DL'15, DL'16, DL'18, DL'21)
 - European Conference on Artificial Intelligence (ECAI'20)
 - Australasian Joint Conference on Artificial Intelligence (AI'13, AI'17, AI'20)
 - 4th Workshop on Foundational Ontology (FOUST IV), 2020
 - Iberoamerican Knowledge Graphs and Semantic Web Conference (KGSWC'19, KGSWC'20)
 - International Conference on Knowledge Engineering and Knowledge Management (EKAW'14, EKAW'16, EKAW'18)
 - Annual Conference of the South African Institute of Computer Scientists and Information Technologists (SAICSIT'15, SAICSIT'16, SAICSIT'17)
 - BigNovelTI 2017
 - JOWO 2017
 - Extended Semantic Web Conference (ESWC'12, ESWC'15, ESWC'16)
 - OWL: Experiences and Directions workshop (OWLED'15, OWLED'16)
 - Argentine Symposium on Ontologies and their Applications (SAOA'15)
 - International Joint Conference on Artificial Intelligence (IJCAI'15)
 - Formal Ontologies for Artificial Intelligence (FOFAI'15)
 - International Workshop on Debugging Ontologies and Ontology Mappings (WoDOOM'13, WoDOOM'14, WoDOOM'15)
 - First International Workshop on Reasoning about Preferences, Uncertainty and Vagueness (PRUV'14)
 - International Conference on Biomedical Ontology 2011 (ICBO'11, ICBO'12, ICBO'13, ICBO'14)
 - Joint Rough Set Symposium (JRS'13)
 - 27th AAAI Conference on Artificial Intelligence, "AI and the Web" track (AAAI'13)
 - 6th International Conference on Rough Sets and Knowledge Technology (RSKT'11)
 - IEEE International Conference on Granular Computing (GrC'11, GrC'12)
 - 5th International Workshop on Modular Ontologies (WoMO'11)
 - Metadata & Semantics Research Conference, Special Track on Agriculture, Food & the Environment (MTSR'10, MTSR'12)
 - 6th International Workshop on Fact-Oriented Modeling (ORM'10)
 - Australasian Ontology Workshop (AOW'09, AOW'10, AOW'11, AOW'12)
 - International Conference on Knowledge Engineering and Ontology Development (KEOD'09, KEOD'10)
 - Semantic Web Applications and Tools for the Life Sciences (SWAT4LS'08, SWAT4LS'09, SWAT4LS'10, SWAT4LS'11)
 - Knowledge Representation Ontology Workshop 2008 (KROW'08)
 - Int. Workshop Semantic Web and Health Care and Life Sciences 2008

- Int. Workshop Network Tools and Applications in Biology 2007 (NETTAB'07)
- Int. Workshop on Engineering Semantic Agent Systems (ESAS'06, ESAS'07, ESAS'08, ESAS'09)
- Reviewer for journals:
 - Applied Ontology
 - Artificial Intelligence
 - Artificial Intelligence in Medicine
 - BMC Bioinformatics
 - Concurrency and Computation: Practice and Experience
 - Data & Knowledge Engineering
 - Expert Systems with Applications
 - Environmental Modelling & Software
 - Expert Systems With Applications
 - Fundamenta Informaticae
 - IEEE Transactions on Fuzzy Systems
 - IEEE Transactions on Knowledge and Data Engineering
 - Information Research
 - Information Sciences
 - International Journal of Approximate Reasoning
 - International Journal of Cooperative Information Systems
 - International Studies in the Philosophy of Science
 - Journal Of Biomedical Semantics
 - Journal on Data Semantics
 - Journal of Web Semantics
 - Language Resources and Evaluation
 - Knowledge Engineering Review
 - Knowledge Management Research & Practice
 - Methods in Ecology and Evolution
 - Semantic Web Journal
 - South African Computer Journal
- Other paper reviewing (delegated):
 - International Conference on the Principles of Knowledge Representation and Reasoning (KR'10)
 - International Joint Conference on Artificial Intelligence 2009 (IJCAI'09)
 - European Semantic Web Conference (ESWC'07, ESWC'08, ESWC'09)
 - European Summer School in Logic, Language and Information (ESLLI'09 student session)
 - European Conference on Logics in Artificial Intelligence (JELIA'08)
 - Int. Workshop on Evolution and Change in Data Management (ECDM'08)
 - Int. Workshop on Description Logics 2008 (DL'08)
 - International Conference on Computer-based Medical Systems 2006 (CBMS'06), Special track on Ontologies for Biomedical Systems
 - International Conference on Ontologies and Databases (ODBASE'05, ODBASE'06)
- Project proposal reviewer for projects submitted at:
 - Fundação para a Ciência e a Tecnologia (Portuguese Foundation for Science and Technology)
 - Deutsche Forschungsgemeinschaft (German Research Foundation)
 - Research Council for Natural Sciences and Engineering at the Academy of Finland
- Reviewer NRF rating applications

Memberships

- Hasso-Plattner Institute Research School in Computer Science for Africa at UCT
- ICT4D Research Centre, UCT
- International Association for Ontology and its Applications (IAOA)

- South African Institute for Computer Scientists and Information Technologists (SAICSIT)
- Southern African Association for Research in Mathematics, Science, and Technology Education (SAARMSTE)

9 Society Engagement

Talks and panels

- Invited talk, entitled ‘Big Data Integration: Building the Intelligent Enterprise’, at the “Role of Women in the Intelligent Enterprise Era” industry conference, Sandton, South Africa, 5-6 August 2019.
- Panelist as AI expert at the “African Regional Conference on Nuclear Disarmament and Lethal Autonomous Weapon Systems”, in Pretoria, South Africa, 17 August 2018.

Activities

- Expert witness on a legal case regarding software, in South Africa (2020). This included authoring an expert witness report, testifying, and providing assistance with attendant computing topics of the case.
- South African Computer Olympiad Trust: trustee, as UCT representative (2014).
- Member of Informatici senza Frontiere [Informaticians without borders]; 3-’10/12-’12.
- Webmaster of the Irish Peace Society, University of Limerick, Ireland. (2002-2004).

Articles

- Contributed technical expertise to the AfricaCheck article by Naphtali Khumalo, entitled “Viral message promising R30,000 from South African government a ‘blatant fake’ ”, May 16, 2019. Available online at <https://africacheck.org/spot-check/viral-message-promising-r30000-from-south-african-government-a-blatant-fake/>.
- General public article “How we’re making the tools to connect isiXhosa and isiZulu to the digital age” for The Conversation, 12 March 2018, with about 5000 views (dd. May 2) and republished on, among others, News24/CityPress and the Mail & Guardian. Available online: <http://theconversation.com/how-were-making-the-tools-to-connect-isixhosa-and-isizulu-to-the-digital-age-92859>.
- Keet, C.M. Dirty wars, databases, and indices. *Peace & Conflict Review*, 2009, **4**(1): 75–78.