Curriculum Vitae — Prof. Dr. Bernd Meyer

Personal Details

Full Name:	Dr. Bernd Meyer
Date of Birth:	April 16, 1965
email:	bernd.meyer@acm.org
web:	berndmeyer.net
Phone:	(03) 9905 2240

Academic Qualifications

- June 1994: Dr. rer. nat, Informatik, University of Hagen, Germany.
  Summa cum Laude. Equivalent PhD Computer Science. Thesis Title: *Visual Logic Languages for Spatial Information Handling* (in German). Supervisor: Prof. Dr. Ralf Hartmut Güting.

- June 1990: Diplom Informatik, Technical University of Braunschweig, Germany.
  ***"Mit Auszeichnung"* (= Summa cum Laude)**. Thesis Title: *Foundations of Prototyping Entity-Relationship Based Information Systems Using Prolog* (in German).

Appointments

- since July 2018: Professor and Associate Dean (Graduate Research), Faculty of Information Technology, Monash University.

- July 2017 - June 2018: Professor and Deputy Dean (Education), Faculty of Information Technology, Monash University.

- February 2014 - June 2017: Professor and Director Education Outreach, Faculty of Information Technology, Monash University.

- January 2011 - December 2013: Associate Dean of Education, Faculty of Information Technology, Monash University.

- January 2007 - February 2014: Associate Professor, Faculty of Information Technology, Monash University, tenured.

- January 2001–December 2006: Senior Lecturer, School of Computer Science and Software Engineering, Monash University, tenured.

- January 2000–December 2000: Lecturer, School of Computer Science and Software Engineering, Monash University.

- August 1999–December 1999: Research fellow, Monash University, Melbourne, Faculty of Information Technology.

- July 1997–May 1999: Research fellow and lecturer, University of Munich, Germany.

- July 1995–July 1997: In July 1995 I received a highly competitive postdoctoral research award (No. ME11/94) from the German Research Council (Deutsche Forschungsgemeinschaft, DFG) enabling me to work abroad for two years as an independent research fellow.

  - July 1995–September 1996: Visiting scientist, Monash University, Melbourne.
  - September 1996–July 1997: Visiting scientist, University of Colorado in Boulder.

- July 1994–July 1995: Lecturer, Computer Science Department, University of Hagen, Germany. Hagen is the leading distance teaching university in Germany.

- 1994: Adjunct Lecturer, University of Dortmund, Germany.

- March 1990–July 1994: Research fellow, Computer Science Department, University of Hagen, Germany.

Grants

I am and have been chief-investigator of successful ARC Discovery proposals with a total volume of more than A\$3 million with an 80% success rate for ARC Discovery applications.

- 2018-2020: ARC Discovery Grant "Modelling collective behaviour to protect social insect ecosystem services" as principal chief investigator with a volume of A\$325,000 (active, with M. Burd, J. Garcia, A. Traulsen and H.J. Offenberg).

- 2018-2020: WISE Grant "Driving social change: Women, Entrepreneurship, and IoT" with a volume of A\$230,000 (active, with C. Gonsalvez, J. Whittle, et al.)

- 2016-2019: ARC Discovery Grant "Real-time modelling of crowd dynamics for disaster prevention" as chief investigator with a volume of A\$440,000 (active, with M. Sarvi and M. Burd).

- 2016-2017: DAAD-UA Joint Research Grant "Division of Labour and Collective Homeostasis in Dynamic Environments" with a volume of A\$50,000 (completed, with Chr. Kleineidam)

- 2014: Google 'Computer Science for High Schools' - Victorian Node Initiative, with a volume of A\$15,000 (completed).

- 2011-2013: ARC Discovery Grant for "Modelling and simulation of self-organised behaviour in biological and bio-inspired systems" as principal chief investigator, with a volume of A\$255,000 (completed).

- 2013: Google 'Computer Science for High Schools' - Victorian Node Initiative, with a volume of A\$15,000 (completed).

- 2012: 2 x EPSRC Global Collaboration Grants in Computational Biology with a combined volume of A\$42,000 (completed).

- 2012: Google 'Computer Science for High Schools' - Victorian Node Initiative, with a volume of A\$15,000 (completed).

- 2008-2011: ARC Discovery Grant for "Adaptiveness of Self-organized Decision-Making" as principal chief investigator, with a volume of A\$ 370,000 (completed).

- 2004-2008: ARC Discovery Grant for "Supporting Adaptive Diagrammatic Communication" as chief investigator, with a volume of A\$ 1,450,000 (completed).

- 2001–2003: ARC Large Grant for "A Computational Framework for Reasoning with Diagrams" as principal chief investigator. Volume: A\$ 181,000 (completed).

- 2002: Monash FITR Grant for "Adaptive Systems" as co-investigator. Volume: A\$ 80,000 (completed).

- 2001: Monash Small Grant for "Linear Constraint Logic Programming for Diagrammatic Reasoning" as chief investigator. Volume: A\$ 14,300 (completed).

- June 2000–July 2000: GETGRATS ("General Theory of Graph Transformation Systems" TMR Network funded by the European Commission): Individual travel grant to work on visual language interpretation frameworks at the University of Rome (completed).

- July 1995–July 1997: Individual postdoctoral research award from the German Research Council (Deutsche Forschungsgemeinschaft, DFG) for research on "constraint-logic based methods for the specification of visual languages and their usage in compiler construction." Volume: DM 110,000 (completed).

Professional Activities

- Editorial Responsibilities

  - since 2015: Editorial board member of "Natural Computing", Springer-Verlag.
  - 2006-2016: Editorial board member of "Swarm Intelligence", Springer-Verlag.
  - since 2006: Editorial board member for CSLI Publications (Stanford University): Studies in the Theory and Applications of Diagrams.
  - 2002: Co-editor of "Diagrammatic Representation and Inference", Springer Verlag.
  - 2001: Co-editor of "Diagrammatic Representations and Reasoning", Springer Verlag: the first monograph summarizing the state of the art in diagrammatic reasoning.
  - 1998: Co-editor of the first monograph on theoretical foundations of visual languages: "Visual Language Theory", Springer Verlag.
  - 1997: Special issue co-editor of the Journal of Visual Languages and Computing.

- Conference Chairs

  - 2000 – 2009: Steering Committee member of the "Diagrams" conference series.
  - 2002: Co-chair of the "Diagrams 2002" conference.
  - 2000: Publicity chair of the "Diagrams 2000" conference.
  - 1999: Special track co-chair of the IEEE Symposium on Visual Languages.
  - 1998: Co-chair of the AAAI Fall Symposium on Formalizing Reasoning with Visual and Diagrammatic Representations.
  - 1997: Co-chair of the International IEEE Workshop on Theory of Visual Languages.
  - 1996: Co-chair of the ACM AVI Workshop on Theory of Visual Languages.

Publications

I have authored over 80 peer-reviewed publications and have received 3 Best Paper Awards and one Best Paper Award Special Mention at leading international conferences. My h-index is 21, my g-index 39. All full list of my publications can be found on my my Google Scholar profile profile or in chronological order on my own web pages at `http://berndmeyer.net/research/references/`

Contributions to Outreach

From 2014-2017 Bernd Meyer served as Director of Education Outreach in the Faculty of Information Technology at Monash University, Melbourne. He has over 20 years of experience in undergraduate and postgraduate teaching and curriculum development and works closely with secondary educators to create a new kind of 'early start' computing curriculum that investigates computation beyond programming.

BM, together with S. Bird of The University of Melbourne, has conceived, initiated, and authored a new Year 12 computing study 'Algorithmics' in the Victorian Certificate of Education (detail see https://www.monash.edu/it/future-students/study-areas/vce-algorithmics). This study is a first in several regards: 1) It is the first study under the new HESS schema designed to offer high performing secondary students early access to tertiary learning. 2) It is a radical departure from what is normally taught as IT in school curricula, emphasising Algorithmics, the core of computer science. 3) It is specifically designed to have no gender bias and has achieved a female enrolment quota of $> 30\%$ in its first delivery, an enormous increase on the $< 10\%$ quota in other VCE IT studies.

Since 2009 BM has led the Faculty of IT team that works with the John Monash Science School to develop a new 'Emerging Technologies' curriculum together with an advanced instantiation of the VCE IT curriculum, as well as specialised computational science units, particularly computational physics and data science. BM represents Monash University on the steering committee of the Victorian Government Monash Tech School project.

He is the lead author of the 'Algorithmic Thinking' stream of the new 'reSolve: Maths by Inquiry' initiative of the Australian Academy of Science.

BM has led various professional development activities for secondary school educators, specifically a series of weekly online video workshops for Algorithmics teachers and, together with S. Bird and and P. Christophersen of VCAA, the Victorian node of the world-wide Computer Science for High Schools initiative (CS4HS). He is involved in a number of other outreach activities that directly address students, including the Bebras contest.

BM has authored a range of IT teaching materials for secondary schools and educational software in conjunction with these (see http://www.snap-apps.org/). A set of these materials which offers self-guided project-based introductions to visual programming (see http://www.flipt.org/) has been met with widespread international interest: over 25000 copies are in circulation with expressions of interest received from more than 25 schools and universities world-wide to use these materials. Shortly after their release as iBooks, these materials occupied 3 of the top 10 positions on the charts for free textbooks on the iBooks store.

Current and Recent Major Projects

- *Models of division of labour in social insects*, collaboration with Julian Garcia (Monash), Anja Weidenmüller (Universität Konstanz) and Christoph J Kleineidam (Universität Konstanz)

- *Colony resilience and social insect ecosystem services*, collaboration with Martin Burd (Monash), Julian Garcia (Monash), Arne Traulsen (MPI Plön) and Hans Joachim Offenberg (University Aarhus)

- *Infrastructure investment in leafcutter ant colonies*, collaboration with Martin Burd (Monash) and Christoph J Kleineidam (Universität Konstanz)

- *Real-time modelling of crowd dynamics*, collaboration with Martin Burd (Monash) and Majid Sarvi (University of Melbourne)

- *Modelling and simulation of self-organised behaviour in biological and bio-inspired systems*, collaboration with Barry Hughes (University of Melbourne) and Toshiyuki Nakagaki (RIES, University of Hokkaido, Sapporo). See
  `http://www.csse.monash.edu.au/~berndm/LangeSim/`

- *Adaptiveness of Self-organized Collective Decision Making*, collaboration with Audrey Dussutour (Centre for Animal Cognition, Universite Paul Sabatier, Toulouse). See
  `http://www.csse.monash.edu.au/~berndm/CDM/`

- *Towards affordable tera-scale reaction-diffusion simulation.* See
  `http://www.csse.monash.edu.au/~berndm/inchman/`