

## Publications by Ian Benson

(Organized by type, chronological order). Updated January, 2024. For more download links see cv.

### Books and edited collections:

B1. Computer Technology and Employment, National Computer Centre, 1979. This book contained an edited version of the proceedings of an AUEW(TASS) conference (co-hosted by the National Computing Centre) held in 1978 on how computer technology was positively and negatively affecting jobs, policies of trade unions, and other areas.

B2. Intelligent Machinery: Theory and Practice, Cambridge University Press, 1986. This book contained an edited version of the proceedings of an SRI (formerly Stanford Research Institute) conference (co-hosted by Churchill College, Cambridge) held in 1984 on achieving national self-sufficiency in multi-disciplinary computer science. <https://books.google.co.uk/books?id=lvI8AAAIAAJ>

B3. World Yearbook of New Generation Computing Research and Development, published in 1988 by North Holland Academic. Edited with Professor Igor Aleksander, Imperial College.

Books written or co-authored:

B4. New Technology and Industrial Change: The impact of the scientific-technical revolution on labour and industry, Nichols (New York) and Kogan Page (London), 1983. Co-authored with John Lloyd, Labour Editor of the Financial Times. This book has become a standard reference on workflow programs, in over 450 libraries, with 116 citations in academic works and specialist journals, in disciplines ranging from sociology to philosophy, economics, political science and system science.

B5. Reasoning about Contingent Events in Distributed Systems, King's College, Cambridge, 1992 (PhD dissertation)

B6. The Primary Mathematics: lessons from the Gattegno School, Lambert Academic Publishing, 2011

### Refereed Conference Presentations, Workshops, Lectures and Articles

S1. "Computers: More Power, Less Manpower," a chapter in the book Selected Essays in Contemporary Computing, edited by Alan Simpson, Input Two-Nine, U.K., 1979

S2. "Planning for the Computerized Future," in P.A. Samet (ed), Proceedings of Euro-IFIP 79, North-Holland Publishing Company, Amsterdam, 1979

S3. "The formation of the research agenda, the state of the art and the challenge of collaborative research," in Intelligent Machinery: Theory and Practice, edited by Ian Benson, CUP, 1986 <https://books.google.co.uk/books?hl=en&lr=&id=lvI8AAAIAAJ&oi=fnd&pg=PR9&dq=info:mX8RKG059fkJ:scholar.google.com&ots=Di88ArbB8c&sig=NvCaEcd6xHr4zgKLI4FtBGP page 1>

S4. "AI in Business" in Intelligent Machinery: Theory and Practice, edited by Ian Benson, CUP, 1986 <https://books.google.co.uk/books?hl=en&lr=&id=lvI8AAAIAAJ&oi=fnd&pg=PR9&dq=info:mX8RKG059fkJ:scholar.google.com&ots=Di88ArbB8c&sig=NvCaEcd6xHr4zgKLI4FtBGPp128>

S5. Computer Science and the Computer Professional, Lectures I and II Professional Practice and Ethics, Computer Laboratory, University of Cambridge, Easter 1989

S6. Information Systems: Present and Future: Teams, Technology and Social Organization, HRDEV '90

S7. "Some Social and Economic Consequences of Groupware for Flight Crew," with Professor Claudio Ciborra of the Institute Theseus, France, and Captain Steven Proffitt of British Airways in Proceedings of 3rd Conference on Computer-Supported Cooperative Work, ACM, 1990

S8. Requirements Analysis for Work-group Technologies: Reasoning about contingent events in distributed systems, Xerox PARC, October 1991

S9. "Notes on the Synthesis of the Firm," Proceedings of the 12th Annual Conference of the International Academy for Information Management in Atlanta, Georgia, 199

- S10. Towards Open Source Modelling, in "E-government at Local Level - Methods for Practitioners," LSE Workshop, March 2001
- S11. Transparency and Accountability in "Information and Communication Technologies and the Delivery of Public Services," British Council Seminars, March 2002
- S12. "Leadership and performance in higher education management," Event Director for 5-day hybrid residential/virtual conference and publisher of video/html record CD-ROM with linked website, British Council Seminars, Bath, November 2003
- S13. "Online political organising: lessons from the field," Proceedings of the 10th ACM conference on Computer-supported cooperative work, ACM, 2004
- S14. Communication as Concurrent Activity, 2008 Algebra Project National Conference "Raising the Floor: Quality Education as a Constitutional Right.," Jackson, Mississippi, 2008
- S15. "Software for Mathematics with Numbers in Color, in "Proc Commission Internationale pour etude et l'Amélioration de l'Enseignement des Mathématiques" (Gattegno Commission), 61e rencontre, Montreal, Canada, July 2009, "QUADERNI DI RICERCA IN DIDATTICA (Scienze Matematiche)" of G.R.I.M. Supplemento n. 2 al N19-PALERMO 2009 (pp505-8)
- S16. The Role of Conceptual Mathematics in Primary School Reform. British Congress of Mathematics Education Conference, April 2010
- S17. Mathematics as Language, Association of Teachers of Mathematics Conference, April 2011
- S18. Experiences with the Cui Curriculum, Association of Teachers of Mathematics Conference, April 2012
- S19. Introduction to the Cui Approach: Part 1 Early Algebra and Part 2 Metamathematics and Formative Assessment, Association of Teachers of Mathematics Conference, April 2013
- S20. "Getting Started with Early Algebra," (with J. Cane and S. Spencer), Primary Mathematics, Mathematical Association, January 2015
- S21. "Functional relationships between patterns of Cuisenaire rods," Mathematics Teaching, March 2015
- S22. "Experiences with Early Algebra," (with J. Cane and S. Spencer), Primary Mathematics, Mathematical Association, September 2015
- S23. The Scientific Revolution Revisited, Education Eye, Prospect, Spring, 2016, 24-25
- S24. "On the awareness of patterns of Cuisenaire rods," Mathematical Imagery, ATM, 2016, 32-34
- S25. "Using Haskell with 5- to 7- year olds," (with J. Cane) HelloWorld, Computing at School, Summer, 2017, issue 2, 60-61
- S26. Working with the rods and why, (co-edited with Jim Thorpe), <https://www.atm.org.uk/Working-with-Rods-Why>, Open resource, ATM, 2017
- S27. "On the Black Rod," On teaching and learning mathematics with awareness, ATM, 2018, 26-32
- S28 Creativity, Compensating Dynamics and Retention (with Anne Haworth), Association of Teachers of Mathematics Conference, April 2019
- S29. "ATM Response to the PISA 2021 Consultation," Mathematics Teaching, ATM, 2019, volume 265, 50
- S30. Review of Stanislas Dehaene, "How we learn: The new science of education," Mathematics Teaching, volume 272, 49, ATM, 2020
- S31. Engaging Algebra early through manipulatives: Reappraising Cuisenaire-Gattegno rods (with Nigel Marriott and Bruce McCandliss), (pre-print <https://psyarxiv.com/zasb9/>), 2021

S32. The logic of collective action revisited. Submitted to 12th ACM conference on Computer-supported cooperative work, 2006, (<https://arxiv.org/abs/2105.01981>), 2021

S33. Computational Thinking in Mathematics (CTM) strand commissioner and co-editor (with Jim Thorpe) [CTM21 Report](#), ATM, 2021

S34. Review of Conrad Wolfram, "The Math(s) Fix: An education blueprint for the AI age," Mathematics Teaching, ATM, 2021, volume 276, 46

S35 Review of Ed Byrne and Charles Clarke, "The University Challenge: Changing Universities in a Changing World", Mathematics Teaching, ATM, 2021, volume 278

S36 Conceptual Mathematics via Literate Programming, (with Jim Darby, Neil MacDonald and Jess Sigal), (under review), 2022, <https://doi.org/10.48550/arXiv.2202.13771>

S37 Thinking with Arrows for Mathematical Thought, (with Jim Thorpe), Mathematics Teaching, ATM, 2022, volume 281, 50

S38. Computational Thinking in Mathematics (CTM) strand commissioner and co-editor (with Jim Thorpe) [CTM22 Report](#), ATM, 2022

S39 The logic of collective action revisited. 26th International Conference on Circuits, Systems, Communication and Computers, 2022 <https://ieeexplore.ieee.org/document/10017892>

S40 Equational Reasoning: A systematic review of the Cuisenaire-Gattegno approach, (with N. Marriott and B. McCandliss) 2022, Front. Educ. 7:902899. doi: 10.3389/feduc.2022.902899 <https://www.frontiersin.org/articles/10.3389/feduc.2022.902899>

S41 Review of Eugenia Cheng, Joy of Abstraction: An exploration of math, category theory and life, Mathematics Teaching, ATM, 2023, volume 285

S42 Computational Thinking in Mathematics (CTM) strand commissioner and co-editor (with Jim Thorpe). CTM23 Report, ATM, 2023 [CTM23 Report](#)

### **Articles, Videos, Podcasts, Blogs on public policy, technology and manpower planning**

P1. "Machines That Mimic Thought," New Scientist, 1972

P2. "AI and Heuristic Programming," Review, New Scientist, 1972

P3. "Problem Solving Methods in AI," Review, New Scientist, 1972

P4. "The new technology: where do we go from here?" Marxism Today, 1979

P5. "Engineering Our Future," Labour Monthly, 1980

P6. "Computer Manpower in the 80's," Report of the National Economic Development Council, Electronics Sector Working Party (Computer Manpower Sub-committee Chair), published by Her Majesty's Stationery Office, 1980.

P7. "Group therapy for a new generation," Guardian, November 8, 1990

P8. "Back to Barter," Executive Produced with Robb Wilmot, Adrian Johnson, and Ed Goldwyn. This formed the CiTI IT Keynote, a 45-minute VHS published by Sybase Inc., 1993

P9. "Machine Politics is the Future," New Statesman, 1997

P10. "Citizen-Centred Electronic Services," which I co-produced with Ed Goldwyn as a 12-minute QuickTime (QT) movie for the 6th ACM Conference on Computer-Supported Cooperative Work, 1998

P11. "Entrepreneurship: Chips and Tips for On-line Government," Review, Financial Times, 1999

P12. "The top 10 things I learnt from Kristen", In Memoriam Kristen Nygaard (1926-2002), [http://kristennygaard.no/in\\_memoriam\\_kristen/](http://kristennygaard.no/in_memoriam_kristen/), Aug 2002

- P13. <http://tizard.stanford.edu/groups/sociality/blog/>, 2002-10
- P14. "Ditching Piaget", Prospect Magazine, January, 2007
- P15. <http://www.youtube.com/user/socialitydottv>, March 2008-
- P16. "Dispatches from the maths wars," Prospect First Drafts, April 2008  
<http://www.prospectmagazine.co.uk/2008/04/raising-gattegnos-standard-despatches-from-the-uk-math-war/>
- P17. "Open Systems, Open Minds," Improvement Magazine, Aspect, August 200
- P18. "Letter from Whitehall," Cambridge University Computer Laboratory Ring Magazine, January 2010
- P19. <http://tizard.stanford.edu>, 2010-
- P20. "Where Social Class, Gender and Generation Intersect," Improvement Magazine, Aspect, January 2011
- P21. "Recognising Children's Mental Powers," Improvement Magazine, Aspect, August 2011
- P22. "To boldly go: can we all be scientific?," Improvement Magazine, Aspect, Spring 2012
- P23. Sociality Mathematics CIC evidence to Advisory Council for Mathematics Education Call for Views on the Draft National Curriculum, June 2012
- P24. "Combination Acts: How schools as self-organised systems can improve and change," Improvement Magazine, Aspect, Autumn 2012
- P25. "Beauty is in the eye of the beholder: A review of Anthony Adonis's Education, Education, Education," Improvement Magazine, Aspect, Summer 2013
- P26. "A mobile learning strategy for the Nation?" Improvement Magazine, Aspect, Spring 2014 (with Melody Drewry)
- P27. "Can computer science rescue mathematics reform?" Cambridge University Computer Laboratory Ring Magazine, September 2014
- P28. Convenor panel on Computational Thinking in Mathematics, Association of Teachers of Mathematics Conference, April 2021 (with Simon Peyton Jones FRS) <https://www.youtube.com/watch?v=1DpRWY1r8fE>
- P29. "Outreach classrooms to mitigate the UK mathematics/informatics deficit," (with A. Borovik, W. Diffie FormerRS and M. Short), Evidence submitted to the House of Lords Select Committee on Science and Technology STEM skills consultation, 2022 <https://committees.parliament.uk/writtenevidence/111202/pdf>
- P30. "Mathematics education in the UK does not add up, (with A. Borovik, W. Diffie and M. Short), Financial Times, 15 December 2022 <https://stanford.io/3wd0F6B>
- P31. "Roger Kistruck (1936-2021)" (with Sue Kistruck), SRI Alumni Association Newsletter, August 2023

### Technical Reports

- T1. "Sociality in the Distributed Office," SRI (formerly Stanford Research Institute), Cambridge Computer Science Research Center, 1988
- T2. "Computational Modeling: A Foundation for Re-engineering Management," OASiS Research TR-1, 1991
- T3. "A Standard for Process Performance Modeling in Design/OASiS(tm)" with Adrian Johnson, OASiS Research TR-2, 1991
- T4. "Object-Oriented Enhancements to IDEF," with Adrian Johnson, OASiS Research TR-3, 1992
- T5. "Documentation of the Business Re-engineering Design and Delivery Process," with Adrian Johnson, OASiS Research TR-4, 1992

- T6. "Analysis of OASiS QA, QC and Change Control Processes," with Adrian Johnson, OASiS Research TR-5, 1992
- T7. "A Seminar on Building a Business Process Encyclopedia," with Adrian Johnson, OASiS Research TR-7, 1993
- T8. "Towards a Unified Design Process," OASiS Research TR-8, 1993
- T9. "Enterprise Work Architecture(tm)," with Nigel Vince et al, Sybase Business Consulting, 1995
- T10. "Java(tm) Distributed Object Frameworks in Finance," with Dr. David Wilson, ICL, 1997
- T11. "From IS Reference to Conceptual and Specification Models," with Ben Galewsky, UBS Warburg, 1998
- T12. "Mathematical Structures for Reasoning about Emergent Organisation", with Steve Everhard, Andrew McKernan, Ben Galewsky Chris Partridge, 8th ACM Conference on Computer-Supported Cooperative Work Workshop "Beyond Workflow Management: Supporting Dynamic Organizational Processes", 2000
- T13. "Practical Protocol Analysis for System Decomposition and Synthesis", Logic and Semantics Seminar, Cambridge University Computer Laboratory, 2001
- T14. "Early algebra, domain-specific languages and 'cryptomorphism'," Laboratory for Foundations of Computer Science, School of Informatics, University of Edinburgh, 2021
- T15. Mathematization, Language/Action and System Validation, Invited Talk, Constructive Mathematics: Foundations and Practice, CM:FP 2023, <http://cmfp2023.masfak.ni.ac.rs>

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