1 Ian Benson CV

- Address: Honorary Research Fellow, School of Education, University of Roehampton

- Email: sociality@me.com

- Online Publications: https://independent.academia.edu/IanBenson

2 Education

- 1998 Stanford University, CA, Graduate School of Business – Executive Program for Growing Companies

- 1987-92 King's College, Cambridge - PhD (Computer Science) http://stanford.edu/~ibenson/webthesis110191.pdf

- 1985-86 Stanford University, CSMS (Computer Science, Symbolic Computation)

- 1967-70 Churchill College, Cambridge - MA (Cantab) (Mathematics)

- 1963-67 Manchester Grammar School

3 Employment

- 2011 – Director, Sociality Mathematics CIC

- 1999– CEO (acting), sociality.{net, com, org, tv}

  - Tizard algebraFirst(tm) 2004- (DfES, DTI, Shuttleworth Foundation, Sutton Trust, Ogden Trust, Apple, NCETM Maths Hubs, Greg and Rosie Lock Charitable Foundation)

- 1997–8, ITIM Associates, Partner

- 1996–7, ICL Consultancy, Managing Consultant

- 1991–6, Sybase Inc (OASiS Division), Managing Consultant

  - SBC – Warburg Acquisition: Logistics and Systems Integration Business Architect (Phaedrus 1995-6)

- 1980–8, SRI International (formerly Stanford Research Institute)

  - 1985–8, Programme Manager, Advanced Systems Integration, SRI Cambridge

  - 1980–4, Management Systems Consultant Midland Bank Forex Retail Systems Architect (1982-3) Project Manager, Feasibility Study, SRI Cambridge Computer Science Research Centre (1983-4)

- 1976-9, Amalgamated Union of Engineering Workers (AUEW), TASS section, Divisional Organiser

- 1970-6, Logica, ITT Data Systems, GEC Elliott; Systems Software Engineer. GEC 4080 and Ferranti Packard 1600 Fortran Compilers.

4   Consulting

2000-3, Non-Executive Director, TransEDA plc (US, UK and Germany)

5   Professional Associations and Honours

- Freeman, Worshipful Company of Information Technologists, 2024

- Affiliate, McCandliss Group, Graduate School of Education, Stanford University, 2023-

- Honorary Research Fellow, University of Roehampton, 2017-24

- Co-convenor, ATM functional programming and computer algebra working group, 2016-

- General Councillor and Trustee, Association of Teachers of Mathematics (ATM), 2015-2020

- Visiting Professor, Informatics, Kingston University Business School 2009-17

- Visiting Professor, Informatics, Faculty of Computing, Information Systems and Mathematics, Kingston University 2009-11

- National Association of Mathematics Advisors, UK, Member 2008-

- Board Member accellera.org, 2002-3

- Visiting Scholar, Computer Science, Stanford University, 2005 (Human-Computer Interaction), 2010-14

- Doctoral Consortium UK Prize winner. Reasoning About Contingent Events in Distributed Systems. US Society of Information Management, International Conference on Information Systems, 1991

- Member, Program Committee, Association for Computing Machinery (ACM) 3rd CSCW Conference, Los Angeles, 1990

- Visiting Professor, Theseus Institute, France 1990, "Future Information Systems Concepts" seminar series

- Partner, Strategic Technology, Apple Computer Inc, Cannes, 1990

- SRI Cambridge Product Champion, SRI Europe, Middle East and Africa, 1985

- Member 1980, Fellow 2004, British Computer Society

- Chair, National Economic Development Council, Electronics Sector Working Party, Manpower SubCtte, 1977–83, London

- President, Junior Common Room and member of Common Council, Churchill College, University of Cambridge, 1969-70

- English Electric Scholarship, 1967-70

6 Selected Publications

6.1 Authored Books

- The Primary Mathematics: Lessons from the Gattegno School, Lambert Academic Publishing, 2011

- 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, sometime Labour Editor, Financial Times.

6.2 Conference Presentations and Workshops

- Experiences with Functional Programming, Joint Conference of Mathematics Subject Associations, April 2024

- Mathematization, Language/Action and System Validation, Invited Talk, Constructive Mathematics: Foundations and Practice CM:FP 2023

- CTM22 Report (with J. Thorpe and A. Borovik), Association of Teachers of Mathematics Second Virtual Conference, October 2022

- Logic of Collective Action Revisited, 26th Annual Conference of Circuits, Systems, Communication and Computers, July 2022 https://ieeexplore.ieee.org/document/10017892

- Convenor, Panel on Computational Thinking in Mathematics (CTM), Association of Teachers of Mathematics Virtual Conference, April 2021 (with Simon Peyton Jones) https://www.youtube.com/watch?v=1DpRWY1r8fE

- CTM21 Report (with J. Thorpe), Association of Teachers of Mathematics First Virtual Conference, August 2021

- Gattegno's Curriculum Chart (with A. Crosby), British Congress of Mathematics Education, April 2018

- Getting Started with Early Algebra, (with J. Cane) National Centre for Excellence in the Teaching of Mathematics, 6 London Maths Hubs, October 2017

- Bridging Mathematics and Computer Science with Haskell, Computing at School, June 2016

- Graphs, Codes, Number Systems and Gattegno, with A Haworth, Association of Teachers of Mathematics, April 2016

- Getting Started with algebraFirst(tm), National Centre for Excellence in the Teaching of Mathematics, 6 London Maths Hubs, July 2015

- Introduction to the Cui Approach: Part 1 Early Algebra, Part 2 Meta-mathematics and Formative Assessment, (with A Haworth) Association of Teachers of Mathematics, April 2013

- Introduction to the Cui Curriculum, Association of Teachers of Mathematics, April 2012

- Mathematics as Language, Association of Teachers of Mathematics, April 2011

- The Role of Conceptual Mathematics in Primary School Reform. British Congress of Mathematics Education, April 2010

- Software for Mathematics with Numbers in Color, in "Proc Commission Internationale pour Etude et l'Amelioration de l'Enseignement des Mathematiques", 61 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)

- Communication as Concurrent Activity, 2008 Algebra Project National Conference "Raising the Floor: Quality Education as a Constitutional Right.," Jackson, Mississippi, 2008

- "The logic of collective action revisited," submitted to the 12th ACM Conference on Computer Supported Co-operative Work, 2006, pre-print https://arxiv.org/abs/2105.01981

- Online political organizing: lessons from the field, Proceedings of the ACM Conference on Computer Supported Cooperative Work, 2004

- Transparency and Accountability in "Information and Communication Technologies and the Delivery of Public Services," British Council Seminars, March 2002

- Towards Open Source Modeling, in "E-government at Local Level - Methods for Practitioners," LSE Workshop, March 2001

- "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

- "Notes on the synthesis of the firm," Proceedings of the 12th Conference of the International Academy for Information Management, 1997, 282-4, https://eric.ed.gov/?q=ED422909

- "Some social and economic consequences of groupware for flight crew" , with Claudio Ciborra and Steve Proffitt, 3rd ACM Conference on Computer-Supported Cooperative Work, September 1990, 119–129 https://doi.org/10.1145/99332.99348

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

- Interventions to improve equational reasoning: replication and extension of the Cuisenaire-Gattegno curriculum effect, (with N. Marriott and B. McCandliss) 2023, Frontiers in Psychology, 14 https://www.frontiersin.org/articles/10.3389/fpsyg.2023.1116555/full

- Review of Cheng, "Joy of Abstraction: An exploration of math, category theory and life." Mathematics Teaching, ATM, 2023, volume 285, 48-49 https://stanford.io/43cRGAS

- Mathematics education in the UK does not add up, (with A. Borovik, W. Diffie and M. Short), Financial Times, 15 December 2022 https://www.ft.com/content/fc87d9ce-bd7d-4b6e-bb30-67ae59aa0a60 https://www.academia.edu/93291289/Mathematics_Education_in_Britain_does_not_add_up

- Outreach classrooms to mitigate the UK mathematics/informatics deficit, (with A. Borovik, W. Diffie 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

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

- Thinking with Arrows for Mathematical Thought, (with J. Thorpe), Mathematics Teaching, ATM, 2022, volume 281, 50 http://www.piazza.com/class_profile/get_resource/io2sufmixtxd4/l3g8iuh7lc14e0

- Conceptual Mathematics via Literate Programming, (with J. Darby, N. MacDonald and J. Sigal) (under Review) https://arxiv.org/abs/2202.13771

- Engaging Algebra Early though Manipulatives: Reappraising Cuisenaire-Gattegno rods, (with N. Marriott and B. McCandliss) 2021, submitted for publication, pre-print https://psyarxiv.com/zasb9/

- Review of Wolfram, "The Math(s) Fix: An Education Blueprint For The AI Age," Mathematics Teaching, ATM, 2021, volume 276, 46

- Review of Dehaene, "How we learn: The new science of education," Mathematics Teaching, ATM, 2020, volume 272, 49 https://tizard.stanford.edu/wp-content/uploads/2020/06/Book-Review.pdf

- ATM Response to the PISA 2021 consultation, Mathematics Teaching, ATM, 2019, volume 265, 50 https://piazza.com/class_profile/get_resource/io2sufmixtxd4/kk17v6akd4038w?

- On the Black Rod, *On teaching and learning mathematics with awareness*, ATM, 2018, 26-32 https://tizard.stanford.edu//wp-content/uploads/2019/06/IaBeBlackRod.pdf

- On Caleb Gattegno: A Personal View, *On teaching and learning mathematics with awareness*, ATM, 2018, 97-101

- Using Haskell with 5- to 7- year olds, (with J. Cane) *HelloWorld*, Computing at School, Summer, 2017, issue 2, 60-61 https://tizard.stanford.edu//wp-content/uploads/2019/06/IaBeHelloWorld-1.pdf

- On the awareness of patterns of Cuisenaire rods, *Mathematical Imagery*, ATM, 2016, 32-34 https://tizard.stanford.edu//wp-content/uploads/2019/06/IaBePatterns.pdf

- Review of M. Teich, "The Scientific Revolution Revisited," Education Eye, Prospect, Spring, 2016, 24-25 https://www.academia.edu/94053871/Review_of_M_Teich_The_Scientific_Revolution_Revisited

- Experiences with Early Algebra, (with J. Cane and S. Spencer), Primary Mathematics, Mathematical Association, September 2015, 23-26

- Functional relationships between patterns of Cuisenaire rods, Mathematics Teaching, ATM, 245, March 2015, 39-40 https://tizard.stanford.edu//wp-content/uploads/2019/06/Introduction-to-Conceptual-Maths.pdf

- Getting Started with Early Algebra, (with J. Cane and S. Spencer), Primary Mathematics, Mathematical Association, January 2015, 3-7

- Can computer science rescue mathematics reform?, Cambridge Computer Laboratory Ring, Issue XXXVII, 2014, 7-8 http://www.cl.cam.ac.uk/downloads/ring/ring-2014-09.pdf

- "Tablets of Wisdom: A mobile learning strategy for the Nation?" Improvement Magazine, Aspect, Spring 2014 (with Melody Drewry), 32-3

- "Beauty is in the eye of the beholder: A review of Anthony Adonis' Education, Education, Education," Improvement Magazine, Aspect, Summer 2013, 38-39

- "Combination Acts: How schools as self-organised systems can improve and change," Improvement Magazine, Aspect, Autumn 2012, 32-34

- Sociality Mathematics CIC evidence to Advisory Council for Mathematics Education Call for Views on the Draft National Curriculum, June 2012

- "To boldly go: can we all be scientific?" Improvement Magazine, Aspect, Spring 2012, 22-23

- "Recognising Children's Mental Powers: On the work of Caleb Gattegno," Improvement Magazine, Aspect, August 2011, 28-29

- "Where Social Class, Gender and Generation Intersect," Improvement Magazine, Aspect, January 2011, 32-33

- "Letter from Whitehall," The Ring, Cambridge Computer Laboratory Alumni Magazine, January 2010, 4-5 http://www.cl.cam.ac.uk/downloads/ring/ring-2010-01.pdf

- "A little known initiative - another tribute to Dick Tizard," Churchill College Review, December 2008, 45-46

- "Open Systems, Open Minds" Improvement Magazine, Aspect, August 2008, 28

- http://www.youtube.com/user/socialitydottv, March 2008-

- "Dispatches from the maths wars," Prospect First Drafts, April 2008 https://www.prospectmagazine.co.uk/world/raising-gattegnos-standard-despatches-from-th

- "Ditching Piaget," Prospect Magazine, January 2007, 16-17 https://www.prospectmagazine.co.uk/magazine/ditchingpiaget

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

- "Machine Politics is the Future," New Statesman, 1997

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

6.4 Technical Seminars, Reports and Software

- "Early algebra, domain-specific languages and 'cryptomorphism'," Laboratory for Foundations of Computer Science, School of Informatics, University of Edinburgh, 2021 https://youtu.be/HR6uwLA2ISY

- notHiding iOS app, https://apps.apple.com/us/app/nothiding/id521900115, 2019

- "Practical Protocol Analysis for System Decomposition and Synthesis," Logic and Semantics Seminar, Cambridge University Computer Laboratory, 2001

- "Enterprise Work Architecture(tm)," with Nigel Vince et al, Sybase Business Consulting, 1995

- "Towards a Unified Design Process," OASiS Research TR-8, 1993

- "A Seminar on Building a Business Process Encyclopaedia," with Adrian Johnson, OASiS Research TR-7, 1993

- "Analysis of OASiS QA, QC and Change Control Processes," with Adrian Johnson, OASiS Research TR-5, 1992

- "Documentation of the Business Re-engineering Design and Delivery Process," with Adrian Johnson, OASiS Research TR-4, 1992

- "Object-Oriented Enhancements to IDEF," with Adrian Johnson, OASiS Research TR-3, 1992

- "A Standard for Process Performance Modeling in Design/OASiS(tm)," with Adrian Johnson, OASiS Research TR-2, 1991

- "Computational Modeling: A Foundation for Re-engineering Management," OASiS Research TR-1, 1991

- "Sociality in the Distributed Office," SRI Cambridge Computer Science Research Center, 1988

7 Document Control

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