

### *Brief Biography*

Michael Batty is Bartlett Professor of Planning at University College London where he is Chairman of the Centre for Advanced Spatial Analysis (CASA). From 1969 to 1979, he was at the University of Reading as Research Assistant, Lecturer and Reader in Geography, before moving to the University of Wales Institute of Science and Technology (now the University of Cardiff) in 1979 where he was Professor of Town Planning. He acted as Head of Department, and Dean of the Faculty of Architecture and Planning. In 1990, he moved to direct the NSF National Centre for Geographic Information and Analysis (NCGIA) at the State University of New York at Buffalo (SUNY-Buffalo) where he was Professor of Geography.

He has been at UCL since 1995 where he set up CASA as an interdisciplinary centre focused on the development of mathematical models, database and digital technologies in geographical information science, urban and regional modelling, and the science of cities. CASA attracts about £2 million each year from research grants coming primarily from EPSRC, ESRC, JISC, the EU 7th Framework/H2020, and the ERC. He has held several visiting appointments in computing, engineering, planning, and geography at the Universities of Illinois, Melbourne, Hong Kong, Bristol, and Michigan, and is currently a Visiting Distinguished Professor at Arizona State University, the Chinese University of Hong Kong, the Hong Kong Polytechnic University and Cardiff University.

He was a member of the Computer Board for British Universities and Research Councils (1988-1990), and Chair (1980-1982), then Vice-Chair (1982-1984) of the ESRC (Economic and Social Research Council) Environment and Planning Committee. He was a member of the SERC (Science and Engineering Research Council) Transport Committee (1982-1985). He was Chair of the ESRC Census Advisory Committee from 2001 to 2011 and a Member of the Advisory Panel on Public Sector Information which is part of the Ministry of Justice (2003-2010). From 1997 to 2003, he was a member of the Association of Universities of the Netherlands (VSNU-NWO-KNAW) Quality Assessment of Research (RAE) Panel for the Built Environment. He was a member of the RAE 2005-2009 Geography Panel.

His research work involves the development of data systems and computer models of cities and regions, and he has published many books and articles in this area, the most recent being **Cities and Complexity** (MIT Press, Cambridge, MA, 2007) and **The New Science of Cities** (MIT Press, Cambridge, MA, 2013), both of which have been awarded the Alonso Prize of the Regional Science Association in 2011 and 2017. His most recent book **Inventing Future Cities** was published by MIT Press in late 2018. He is editor of the journal **Environment and Planning B**. His research work is pictured on his blogs at <http://www.complexcity.info/> and <http://www.casa.ucl.ac.uk/>.

He was elected as a Fellow of the Royal Society of Arts in 1982, a Fellow of the British Academy in 2001, the Academy of Social Sciences in 2001, and awarded a CBE in the Queen's Birthday Honours in June 2004. He was elected a Fellow of the Royal Society in 2009, and is the recipient of the 2013 Lauréat Prix International de Géographie Vautrin Lud. He was awarded the Gold Medal (Founder's Medal) of the Royal Geographical Society in 2015, the Gold Medal of the Royal Town Planning Institute in 2016, the Senior Scholars Award of the Complex Systems Society in 2016, and in 2018, the Waldo Tobler prize for GI Science of the Austrian Academy of Sciences.

*Full Curriculum Vitae: Part 1: Career Details*

*Personal Information*

Full Name (John) Michael Batty

Current Appointment Bartlett Professor of Planning, Chairman, Centre for Advanced Spatial Analysis (CASA), University College London (UCL)

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Web [www.ComplexCity.info/](http://www.ComplexCity.info/) & [www.spatialcomplexity.info](http://www.spatialcomplexity.info)  
Wikipedia: [http://en.wikipedia.org/wiki/Mike\\_Batty](http://en.wikipedia.org/wiki/Mike_Batty)  
[https://en.wikipedia.org/wiki/Centre\\_for\\_Advanced\\_Spatial\\_Analysis](https://en.wikipedia.org/wiki/Centre_for_Advanced_Spatial_Analysis)

Citizenship British (US Green Card Holder 1991-2011)

*Degrees and Professional Qualifications*

BA University of Manchester, First Class Honours 1962-1966  
PhD University of Wales, Institute of Science and Technology, 1984  
FRTPI Fellow of the Royal Town Planning Institute, 1983, Member 1971  
FRGS Fellow of the Royal Geographical Society, 1972  
FCILT Fellow of the Chartered Institute of Logistics & Transport, 1990, Member 1984

*Elections to Learned Societies*

FRSA Fellow of the Royal Society of Arts, elected 1982  
FBA Fellow of the British Academy, elected 2001  
AcSS Academician of the Social Sciences, elected 2001  
FRS Fellow of the Royal Society, elected 2009  
FRSAI Fellow of the Regional Science Association International 2019

*Honours and Awards*

1966 *Clifford Holliday Prize* for highest honours (First Class) Town and Country Planning, University of Manchester  
1992 *Wesley Dougill Prize* for the paper "New Technology and Planning: Reflections on Rapid Change and the Culture of Planning in the Post-Industrial Age, *Town Planning Review*, 62, 269-294, 1991  
1998 *AGI Award for Technological Progress*: Association of

- Geographic Information awarded to the Centre for Advanced Spatial Analysis
- 1999 The Royal Geographical Society's *Back Award* for the Reward and Encouragement of Scientific Geography in "Contributions to National Policy and Practice in Planning and City Design"
- 2001 *Sir Edward Youde Visiting Professorship and Memorial Lecturer*, University of Hong Kong, June 2001
- 2002 *AGI Award for Innovation*: Association of Geographic Information, awarded to the Centre for Advanced Spatial Analysis
- 2004 *CBE: Commander of the British Empire*, Queen's Birthday Honours List June 2004
- 2006 *Clarkson Chair*: School of Architecture and Planning: SUNY-Buffalo
- 2006 *Guest Professor* School of Urban Design: Wuhan University (PRC) 2006-9
- 2008 *Honorary LH.D.* (Doctor of Humane Letters): State University New York
- 2010 The *William Alonso Memorial Prize* of the Regional Science Association for the book **Cities and Complexity** (MIT Press, 2005)
- 2012 The *UCGIS Award for Research*: University Consortium for Geographic Information Science, 2011-2012
- 2013 *Lauréat Prix International de Géographie Vautrin Lud* ('Nobel de Géographie')
- 2014 *The Israel Pollak Distinguished Lecture Series*, Technion, Haifa, March 2014
- 2015 *Universität Duisburg-Essen*, Sparkasse Essen Scientist in Residence
- 2015 *Honorary LLD* (Doctor of Laws): University of Leicester, UK
- 2015 *The Gold Medal: Founder's Medal*: for contributions to the geographical science of cities: The Royal Geographical Society.
- 2016 *The Senior Award*, The Complex Systems Society
- 2016 *The Gold Medal* of The Royal Town Planning Institute
- 2017 The *William Alonso Memorial Prize* of the Regional Science Association for the book **The New Science of Cities** (MIT Press, 2013)
- 2018 The *Waldo Tobler Prize for GI Science* of the Austrian Academy of Sciences

*Who's Who 2001+; Debrett's People of Today 2002+*

Google Scholar: Citations All 40763, since 2015 18746; h-index 99, since 2015: 65 <http://tinyurl.com/zgfrs3o>

### *University Appointments*

1995 to date I joined University College London in 1995 to set up the Centre for Advanced Spatial Analysis (CASA) whose mission is to develop new computer based technologies for a range of spatial problems and policies in the environmental, built form, archaeological, health, and transport areas. I held a joint Chair between the Bartlett School and the Department of Geography, until being made Bartlett Professor of Planning in 2004. From 2010, I now hold the position of Professor of Spatial Analysis and Planning within the Faculty of the Built Environment (The Bartlett) at UCL. I am also Emeritus Bartlett Professor of Planning and I am Chair of the Management Board of CASA

### *Previous Appointments*

1990-1995 Director of the NSF National Center for Geographic Information and Analysis (NCGIA), State University of New York at Buffalo, NY, USA

1979-1989 Professor of City and Regional Planning, Faculty of Engineering and Environmental Design, University of Wales, Cardiff; Dean of the School of Environmental Design 1983-1986; HoD 1985-1989

1975-1979 Lecturer, then Reader in Geography, University of Reading

1974-1975 Assistant Professor of Civil Engineering, University of Waterloo, Ontario, Canada

1969-1974 Research Assistant, then Lecturer in Geography, University of Reading

1966-1969 Studio Assistant/Assistant Lecturer, Department of Town and Country Planning, University of Manchester

### *Visiting Appointments*

2017- Honorary Professor: Tsinghua, Wuhan, Shenyang & Tongji Universities

2017- Distinguished Chair Professor, Hong Kong Polytechnic University

2015-2017 VC Distinguished Visiting Professor, Chinese University of Hong Kong

2013 Visiting Professor, Centre for Urban Science and Progress, New York University

2010- Honorary Professor, University of Cardiff

2010- Visiting Distinguished Professor, Arizona State University

2004 Visiting Scientist, Department of Primary Industries, Government of Victoria, Australia

2003 Visiting Professor, Eastern Michigan University and University of Michigan, Ann Arbor

1993-1995 Honorary Professor, Department of Geography, University of Bristol

- 1986 Croucher Fellow, Centre for Urban Studies and Urban Planning, University of Hong Kong
- 1986 Visiting Professor, National Center for Supercomputing Applications University of Illinois at Urbana-Champaign
- 1982 Professorial Fellow, School of Environmental Planning, University of Melbourne
- 1972-1974 Tutor in Planning, Polytechnic of Central London

### *Achievements*

#### *CASA and University College London 1995 to date*

CASA has attracted substantial funding for research in the application of geographic information, multi-media and virtual reality systems technologies. From 1997 to 2000, it was recipient of a Technology Foresight Challenge Award of £1m to develop a Virtual Reality Centre for the Built Environment. Its research involves computer technologies from the sciences to the humanities and this is reflected in its funding which has been from EPSRC, NERC, ESRC, JISC, the EU and the ERC. The centre has attracted over £20m since it was formally started in 1995-6 and has graduated some 55 PhD students. It currently has 20 PhD students, offers a Masters degree in Smart Cities and Urban Analytics, plays a part in the UCL Digital Economy Regional Development project, and is focussed on complexity science as applied to cities and spatial systems. CASA is part of the Faculty of the Built Environment and is funded through the research streams associated with Planning and Architecture. Currently I am Chairman of the Centre.

#### *The NCGIA at SUNY-Buffalo 1990 to 1995*

The National Center for Geographic Analysis and Information (NCGIA) is a National Science Foundation research center located on three sites: Santa Barbara, Buffalo and Orono (Maine). I was Director of the Buffalo site and Associate Director of the National Site. The budget of the National Center was around \$3m per annum with a State match of equivalent monies. I was responsible for all aspects of financial management as well as the research program which was based on series of Research Initiatives pursued by various members of the Center through the form of conferences, research projects with graduate student assistantships, and visiting fellowships.

At Buffalo, I was a member of the Faculty of Social Sciences Committee between fall 1992 and summer 1994, an elected member of the University's Faculty Senate, and from 1994 to 1995, a member of the Presidential Review Board for tenure and promotions which deals with all units in the SUNY-Buffalo system. I served on various Faculty Search Committees, on the UB Working Group for Economic Development part of the SUNY 2000 University-wide planning exercise, and the UB Governance Project.

#### *City and Regional Planning at UWIST (University of Cardiff) 1979 to 1989*

I was a Professor originally at UWIST (University of Wales Institute of Science

and Technology) until it merged with University College Cardiff in 1987 to become the University of Cardiff. From 1985 until 1989, I was Head of the Department of City and Regional Planning (formerly Town Planning), From 1979 until 1985, I held the second Chair in Town Planning with responsibilities for graduate courses and research, and from 1983 to August 1986, I was Dean of the School of Environmental Design.

My greatest achievement during this period was to propel the department into the top accolade in RAE terms. Until 1996 RAE, the department was the only top ranked department in Cardiff. It was graded as 'outstanding' in the first University Grants Committee's (UGC's) ranking published in May 1986. It maintained this distinction in being one of 140 departments in all British Universities designated as of international repute in the 1989 review of departments by the University Funding Council (UFC). It was also graded in the top rank (Grade 5) in 1992, 5\* in 1996, and 5\* (now 6\*) in 2001. In my specialist field of computer modelling, the department was awarded a 'New Blood' lecturership in 1984. In 1986 and in 1988, the department was designated one of the seven ESRC Regional Research Laboratories, and in August 1987, the Welsh Office established a Centre for Housing Management within the department to lead a new initiative in housing education and research. The department was granted a National Academic Appointments Scheme (NAAS) lecturership in 1989.

At Cardiff. I was a member of many committees with my main focus on computing: these were Computer Committee (1980-1984; Chair 1986-1988), Cardiff Joint Computing Committee (1988-1990), SWURCC Technical Advisory Group (1986-1988), SWURCC Policy Committee (1986-1988), Faculty of Engineering and Environmental Design (1988-1990), Senate Policy Committee (1986-1988), Planning and Development Committee (1986-1988), Joint Safety Committee (1986-1988), Departmental Board (1985-1988), Disciplinary Committee (1985-1990), Committee of Deans (1983-1986), University Court (1979-1990), School of Environmental Design (1979-1988), and Senate (1979-1990).

#### *University of Reading 1969-1979*

I had normal administrative responsibilities as a lecturer, then reader, in the Department of Geography and School of Planning Studies and was Director of the MSc in Regional and Urban Planning Studies. At various times, I was a member of the Faculty Boards of Urban and Regional Studies, and Letters, a member of the Boards of Studies of the MSc in Regional and Urban Planning Studies, the MPhil in Environmental Planning, and a member of the Course Committee of the BSc in Scientific Bases of Planning.

#### *The University of Manchester 1966-1969*

I was what was called a Studio Assistant with the rank of Assistant Lecturer. I assisted the 4<sup>th</sup> Year UG Studio Master with projects on design methods and systems planning and also gave a lecture course on planning techniques. I was associated with urban simulation research and retail models.

*External Appointments: Research and Related Committees*

2006 to 2009	Member, Research Assessment Panel on Geography and the Environment, Higher Education Funding Council
2003 to 2010	Advisory Panel on Public Sector Information, Office of Public Sector Information, Cabinet Office, now the Ministry of Justice
2003 to date	Research Board, Royal Geographical Society
2002 to date	Chair, ESRC-JISC Census Advisory Group
1997-2003	Member of the Association of Universities of the Netherlands (VSNU-NWO-KNAW) Quality Assessment of Research (RAE).
1996-1998	Member, Advisory Group on Computer Graphics, JISC
1995-1999	Member Advisory Board, CIT Initiative in Built Environment University of Cardiff
1992 to date	Member International Advisory Committee National Laboratory Environmental Information Systems, Chinese Academy of Sciences
1989-1990	Member of the Scientific Computing Advisory Panel, Science and Engineering Research Council (SERC)
1988-1990	Member of the Computer Board for Universities and Research Councils
1988-1990	Member of the Natural Environment Research Council (NERC) Committee on Scientific Computing,
1988-1990	Member of the South West Universities Regional Computing Centre (SWURCC) Policy Board
1986-1990	Member, British Computer Society Computer Graphics and Displays Group Executive Committee
1984-1986	Member, RTPI Research Board High Technology Working Party
1982-1985	Member, Joint Transport Committee, Science and Engineering Research Council (SERC) and Economic and Social Research Council (ESRC)
1982-1984	Vice-Chair, Environment and Planning Committee, Economic and Social Research Council (ESRC)
1980-1982	Chair, Planning Committee, Social Science Research Council (SSRC)
1980-1982	Member, Research Board, Social Science Research Council (SSRC)
1980	Member, Planning Committee, Social Science Research Council
1979-1985	Member, Royal Town Planning Institute (RTPI) Research Board,
1977-1978	Member, SSRC Survey Archive/Human Geography Subcommittee

*Education Committees*

1987-1988	Member of the General Board for Architecture in the
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	University of Cambridge
1986-1990	Visiting Panel, RTPI Education Board
1985-1988	Executive Committee Member, Conference of the Heads of Planning Schools
1984-1989	Member of the University Committee on Integrated Sandwich Courses (UCISC)
1984-1985	Chair, RTPI Course Development Panel Working Party on Information Technology and Planning Education
1980-1984	Member, RTPI Planning Forum
1976-1978	Member, Education for Planning Association Committee

#### *Professional Committees*

1986-1990	Member, RTPI South Wales Branch Executive Committee
1979-1981	Chair, British Section, Regional Science Association
1976-1979	Member, International Committee on Computers in Architecture, Building Design and Urban Planning
1975-1979	Member, British Section, Regional Science Association
1974-1978	Member, Urban Policy Planning Committee, Planning, Transport, Research and Computation Ltd. PTRC
1972-1974	Chair, Urban Policy Planning Committee, PTRC

#### *Teaching and Examination*

##### *Courses Taught*

Urban Systems, CASA, MSc in Smart Cities, UCL, October-September 2014, 2015, 2016, 2017, 2018, 2019

Modelling and Simulation CASA MRes and MSc in Smart Cities, UCL, January-March, 2014, 2015, 2016, 2017, 2018, 2019  
<http://www.spatialcomplexity.info/>

Smart Cities, Tel-Aviv University, Masters in Architecture, Tel-Aviv, Israel, June, 2013, <http://www.spatialcomplexity.info/>

Spatial Modelling and Simulation: Complexity, CA, and ABM: CASA MRes, UCL, February - March, 2013,  
<http://www.spatialcomplexity.info/>

Smart Cities, Arizona State University, GCU 598 (28167) and PUP 598 (28168), Tempe, AZ, January-February, 2013,  
<http://www.spatialcomplexity.info/>

Spatial Modelling and Simulation: Urban Modelling, CASA MRes, UCL, January - March, 2012, <http://www.spatialcomplexity.info/>

Spatial Complexity, Arizona State University, GCU 598 (28167) and PUP 598 (28168), Tempe, AZ, October - Nov, 2011,  
<http://www.spatialcomplexity.info/>

Urban Simulation: Methods, Models and Planning Applications, Department of Geography, Ritsumeikan University, Kyoto, Japan, October 12th - October 15th, 2010, <http://www.casa.ucl.ac.uk/rits/>

Advanced Urban Modeling, Arizona State University, GCU 598 (28167) and PUP 598 (28168), Tempe, AZ, April 26 - May 7, 2010,  
<http://www.casa.ucl.ac.uk/asu/>

Cyberspace: The Geography and Planning of Virtual Worlds, (BSc3:



Geography; BSc2 and 3: Bartlett Planning), 1999-2001 (UCL)  
Methods for Human Geographers (BSc2: Geography), 1998-2001 (UCL)  
Practice of Geography (BSc2: Geography), 1997-1998 (UCL)  
Planning Analysis (BSc 2: Bartlett Planning, MPhil Planning from 1998),  
1997-1998 (UCL)  
Methods for Geographers (B113: BA1/BSc1: Geography), 1996 (UCL)  
GIS for Planners (BSc2/BSc3: Bartlett Planning), 1996 (UCL)  
The Geography of the Information Society (GEO666), 1995 (Buffalo)  
Introduction to Geographic Information Systems (GEO481), 1994  
(Buffalo)  
World Civilization Post 1500 (UGC112B), 1992-1994 (Buffalo)  
Land Use-Transport Models (GEO674), 1991-1993 (Buffalo)  
Transportation Systems (GEO335), 1991 (Buffalo)  
Urban Design (BSc1), 1986-1990 (Cardiff)  
Microcomputer Applications in Planning (MSc2/DipTP2), 1984-1990  
(Cardiff)  
Planning Methods (MSc1), 1979 -1990 (Cardiff)  
Introduction to Planning Methods (BSc1), 1979-1986 (Cardiff)  
Research Methods (Scientific Method) (BSc2/MSc1), 1979-1986 (Cardiff)  
Quantitative Methods (MSc2), 1979-1980 (Cardiff)  
Planning Techniques (BSc2), 1979-1980 (Cardiff)  
Introduction to Contemporary Planning (MSc1), 1979-1980 (Cardiff)  
Planning Processes (MSc/MPhil), 1976-1979 (Reading)  
Land Use Models (MAsc), 1974-1975 (Waterloo)  
Information Theory (MAsc), 1974-1975 (Waterloo)  
Urban Land Use Models (MSc), 1973-1979 (Reading)  
Theory and Practice of Planning (MSc), 1973-1979 (Reading)  
Spatial Interaction (BSc2), 1973-1979 (Reading)  
Central Place Theory (BSc2), 1972-1974 (Reading)  
Urban Economics (BSc2), 1972-1976 (Reading)  
Urban Design and Regional Planning (BA4), 1966-1969 (Manchester)

*Research Student Advisor (PhDs/MPhils Completed)*<sup>1</sup>

Yongping Zhang (PhD UCL 2020): *Human Group Behaviour in Cities: An Analysis Using Smart Card Data*  
Zahratu Shabrina (PhD UCL 2019) *The Impact of the Platform Economy In Cities: The Case of Airbnb*  
Greg Erhardt (PhD UCL 2016): *Fusion of Large Passively Collected Data Sources to Understand Travel Demand Trends and Measure Transport Project Impacts*  
Hrishi Ballal (PhD UCL 2015): *Collaborative Planning with Digital Design Synthesis*  
Chen Zhong (PhD ETH Zurich 2014): *Urban Transformation Towards Polycentricity: Detecting Functional Urban Changes in Singapore from Transportation Data*  
Vassilis Zachariadis (PhD UCL 2014): *Modelling Pedestrian Systems*  
Amon Boontore (PhD UCL 2014): *Sprawl and Distance Travelled:*

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<sup>1</sup> I am currently responsible for 4 active and 3 completing PhDs in CASA.

- Evidence from European Metropolitan Areas*  
Fabian Neuhaus (PhD UCL 2013): *Urban Rhythms: Habitus and Emergent Spatio-Temporal Dimensions of the City*  
Dong Han Kim (PhD UCL 2012): *Modelling Urban Growth: Towards an Agent Based Microeconomic Approach to Urban Dynamics and Spatial Policy Simulation*  
Varina Delrieu (PhD UCL 2012): *GIS-Based Indicators for the Social Impact of Mega Urban Transport Projects*  
Duncan Smith (PhD UCL 2011): *Polycentricity and Sustainable Urban Form: An Intra-Urban Study of Accessibility, Employment and Travel Sustainability for the Strategic Planning of the London Region*  
Basak Demires Ozkul (PhD UCL 2011): *Changing Settlement Patterns For Home and Work in England and Wales: 1981-2001*  
Jon Reades (PhD UCL 2011): *The Place of Telecommunications: Spatial Decision-Making by Firms in the Age of Global Communications*  
Yi Gong (PhD UCL 2009): *Exploring Children's Movements: An Investigation of GPS Tracking in the Local Environment*  
Toofan Hagani (PhD BCU 2009): *Complexity Theory, Fractal Geometry and the Nature of Urban Morphological Evolution*  
Lucas Figueiredo (PhD UCL 2009): *Continuity Lines, An Investigation of Urban Form Through Street Networks*  
Kazuki Nakamura (PhD UCL 2009): *The Effect of Area-Wide Pedestrianisation on Town Centre Attractions*  
Martin Dodge (PhD UCL 2008): *Understanding Cyberspace Cartographies: A Critical Analysis of Internet Infrastructure Mapping*  
Theodore Zamenopoulos (PhD UCL 2008): *Design out of Complexity: A Mathematical Theory of Design as a Universal Property Of Organization*  
Victor Schinazi (PhD UCL 2008): *Representing Space: The Development, Content and Accuracy of Mental Representations by the Blind and Visually Impaired*  
Andrew Crooks (PhD UCL 2007): *Experimenting with Cities: Utilizing Agent-Based Models and GIS to Explore Urban Dynamics*  
Katerina Alexiou (PhD UCL 2007): *Understanding Multi-Agent Design as Coordination*  
Ian Greatbatch (MPhil UCL 2007): *Issues in Retail Centre Definition*  
John Ward (PhD UCL 2007) *Urban Movement - Models of Pedestrian Activity*  
Nancy Chin (PhD UCL 2007) *Spatial Analysis and the Measurement of Urban Sprawl*  
Joana Margarida de Alimeida Simões (PhD UCL 2007) *An Agent-Based Approach to Spatial Epidemics through GIS*  
Kampanart Piyathamrongchai (PhD UCL 2006) *A Dynamic Settlement Simulation Model: Applications to Urban Growth in Thailand*  
Maria Attard (PhD UCL 2006) *Coping with Change. The Problems of Adopting Sustainable Transport Policies in the Small Island State of Malta*  
Chao Li (PhD UCL 2005) *Pedestrian WayFinding Using Mobile Devices*  
Naru Shiode (PhD UCL 2005): *Information Spaces in Urban Society: Analyses of Real and Virtual Worlds and Utilisation of Cyberspaces*  
Daryl Lloyd (PhD UCL 2005): *Uncertainty in Town Centre Definition*

- Joana Barros (PhD UCL 2004): *Urban Growth in Latin American Cities: Exploring Urban Dynamics through Agent-Based Simulation*
- Kang-Rae Ma (PhD UCL 2004) *The Impact of Urban Spatial Decentralisation on Jobs-housing Imbalance*
- Sanjay Rana (PhD UCL 2004): *Surface Networks: New Techniques for the Automated Extraction, Generalisation and Application*
- Paul Torrens (PhD UCL 2003): *Simulating Sprawl: A Dynamic Entity-Based Approach to Modeling North American Urban Sprawl Using Cellular Automata and Multi-Agent Systems*
- Andy Hudson-Smith (PhD UCL 2003): *Digitally Distributed Urban Environments: The Prospects for Online Planning*
- Nick Green (PhD UCL 2002): *From Factories to Fine Art - The Origins and Evolution of East London's Artists' Agglomeration 1968-98*
- Muki Haklay (PhD UCL 2002): *Public Environmental Information Systems: Challenges and Perspectives*
- David O'Sullivan (PhD UCL 2000): *Graph-based Cellular Automaton Models of Urban Spatial Processes*
- David Howes (PhD SUNY-Buffalo 1999): *Modeling Runoff in a Desert Shrubland Ecosystem, Jornada Basin, New Mexico*
- Masanao Takeyama (PhD University of California-Santa Barbara 1996): *Geoalgebra: A Mathematical Approach to Integrating Spatial Modeling and GIS*
- Pat Pelligrini (PhD SUNY-Buffalo 1996): *Migration Modeling using the PUMS, 1985-1990*
- Anne Deakin (PhD SUNY-Buffalo 1996): *The Impact of the 1994 Northridge Earthquake on Los Angeles Motorists*
- Frank Xia (PhD SUNY-Buffalo 1995): *Three Dimensional GIS for Environmental Modeling*
- Tim Pitts (PhD SUNY-Buffalo 1994): *Inter-Port Competition and Cargo Tributary Areas for International Containerized Exports from the United States*
- Feibing Zhan (PhD SUNY-Buffalo 1994): *Spatio-Temporal Location Models of Mobile Trading and the Organization of Periodic Market Places*
- Yichun Xie (PhD SUNY-Buffalo 1994): *Analytical Models and Algorithms for Cellular Urban Dynamics*
- Betty E. Smith (PhD SUNY-Buffalo 1994): *Urban Morphology in South America*
- Yuemin Ding (PhD SUNY-Buffalo 1993): *Strategies for Parallel Spatial Modeling Using MIMD*
- Kim Chan Nam (PhD Wales 1992): *Freight Transport and Commodity Flows in the South Korean Space Economy*
- Simon Thompson (MPhil Wales 1990): *Fractal Representation in Computer Carto-graphy*
- Harry Dimitriou (PhD Wales 1989): *A Development Approach to Transport Planning in the Third World*
- Rajah Ratnam (PhD Wales 1988): *A Theoretical Model for the Selection and Examination of Bus Priority*
- Stephen Cropper (PhD Wales 1986): *Structural Models of the Design Process*

Augustin Rodriguez-Bachiller (PhD Reading 1984): *Contiguous Urban Growth*

Derek Constable (PhD Reading 1984): *Urban Dynamics: Critique and Application to Three English Towns*

Barend Linders (PhD Reading 1982): *Decision Making in Regional Planning*

Ronald Botham (PhD Reading 1981): *Road Investment and Regional Development: A Case Study of the Impact of the British Road Programme 1957-1972*

Erlet Cater (PhD Reading 1981): *The Impact of the M4 Motorway on Residential Location in the Reading Subregion*

Raymond Wyatt (PhD Reading 1975): *A Computer Search Technique for Complex Urban Strategy Formulation*

Nicholas Bather (PhD Reading 1973): *Residential Location: The Spatial Distribution of Growth and the Role of the Developer in the Subregional Housing Market*

#### *External Examining: Degree Courses*

University of Leeds, MA/MSc in Geographical Information Systems, 2002 to 2005

University of Cambridge, MPhil in Geographical Information Systems, 2001 - 2004, MPhil in Human Geography, 2002 - 2004

University of Leicester, MSc in Geographical Information Systems, 1997-2000

University College London, MSc in Advanced Architectural Studies, 1989-1993

Queens University, Belfast, MSc in Town and Country Planning, 1988-1991

University of Sheffield, MA in Town and Regional Planning, 1987-1990

University of Technology Malaysia, BSc in Urban Planning Studies, 1987-1989

University of Strathclyde, BA in Planning Studies, 1986-1990

Imperial College and University College, London, Intercollegiate MSc in Transport Planning, 1985-1987

University of Manchester, BA in Town and Country Planning, 1984-1988

Oxford Polytechnic, BA in Planning Studies, 1984-1988

Birmingham Polytechnic, BA in Town Planning, 1983-1987

Leeds Polytechnic, MA in Environmental Planning Studies, 1981-1986

University of Bristol, BSc in Geography, 1981-1984

University of Dundee, BSc in Town and Regional Planning, 1980-1982

University of Liverpool, MCD in Town and Regional Planning, MA in Regional Science, 1980-1983

University of Wales Institute of Science and Technology, BSc in Town Planning Studies, 1978-1979

University of Aston, MSc in Environmental Planning and Design, 1977-1979

University of Hong Kong, MSc in GIS, 2007 to 2009

Kingston University, MSc in GIS, 2008 to 2011

University of Southampton, MPhil in Remote Sensing and Spatial

Analysis, 2008 to 2011

University of Newcastle Upon Tyne, BSc in GIS, Department of Geomatics, 2016 to 2018

*Research Degrees: Masters (MA, MSc and MPhil)*

Royal Melbourne Institute of Technology, Department of Business, 1999  
Cranfield Institute of Technology, Centre for Transport Studies, 1986;  
IERC, 1996

University of Lancaster, Environment Centre, 2016

Royal College of Art, Department of Design Research, 1985

University of Nottingham, Department of Mathematics, 1976

Victoria University of Wellington, Architecture, Building Science and Design, 2008

*Research Degrees: Doctorates (PhD)*

University of Southampton, Department of Geography, 2007

City University, London, School of Information Sciences, 2007, 2008

Instituto Nacional de Pesquisas Espaciais (INPE), Sao Jose dos Campos, Brazil, 2003

Heriot-Watt University, School of Mathematics and Computer Science, 2003

University of London, Imperial College, Huxley School, 2002

University of London, Queen Mary, 2001

University of Wales, Cardiff, Department of City and Regional Planning, 2000, 2010

University of Roorkee, Department of Civil Engineering, 1999

University of London, London School of Economics, 1999

University of London, Birkbeck College, 2020

University of London, Kings College, 2020

University of Lancaster, Business School, 1998

Oxford Brookes University, Department of Planning, 1997, 2000

University of Sheffield, Department of Town and Regional Planning, 1997 School of Geography 2013

University of Hong Kong, Centre for Urban Studies, 1996

University College Dublin, Center for Environmental Policy, 1991

University of London, Imperial College, Department of Civil Engineering, 1987

University of Leeds, Institute for Transport Studies, 1987

University of Liverpool, Department of Civic Design, 1986

Open University, Faculty of Technology (Design Discipline), 1985, 2008

University of Newcastle-upon-Tyne, Department of Town and Country Planning, 1984, 2003, School of Civil Engineering and Geosciences, 2004, 2019

University of London, University College London, The Bartlett, 1983, 1997 (2), 1998, 1999, 2007, 2010, 2012, 2013, 2017, 2019

University of Strathclyde, Department of Urban and Regional Planning, 1983

University of Queensland, Department of Regional and Town Planning, 1983, 1986

University of Edinburgh, Department of Urban Design and Regional Planning, 1982  
University of Newcastle, New South Wales, Department of Mathematics, 1981, Department of Civil Engineering, 1996  
University of New South Wales, Sydney, Faculty of the Built Environment, 2008, 2016, 2018  
Cranfield Institute of Technology, Centre for Transport Studies, 1980; IERC, 1997, 1998, 1999, 2008  
Royal College of Art, Department of Design Research, 1980  
University of Warwick, Department of Engineering Science, 1979, 2018  
University of Leeds, School of Geography, 1977, 1978, 1982, 1985, 1999, 2001, 2004, 2008, 2012  
University of Bristol, Department of Geography, 1977, 1978, 1980, 1984, 1989, 1997, Engineering, 2017  
University of Cambridge, School of Architecture, 1977, 1978, 1979, 1980 (twice), 1981, 1982, 1990, 2002, 2015, 2016 (twice), 2017, Department of Land Economy, 2011, 2015, 2017, Department of Geography, 2013, Department of Engineering, 2019 (twice)  
University of Waterloo, Ontario, Department of Civil Engineering, 1975, 1978, 1979, 1980  
Université Catholique de Louvain, Louvain-la-Neuve, 2004-2005  
Université de Nantes and CERMA UMR CNRS 1563 Ecole d'Architecture de Nantes, 2004  
Chalmers University, Department of Physical Resource Theory, 2005  
University of Auckland, Department of Geography, 2005  
Eindhoven Institute of Technology, Faculty of the Built Environment, 2006, 2008  
Chinese University of Hong Kong, Department of Geography, 2006-7  
Wageningen University, Department of Planning, 2006  
Delft University of Technology, Faculty of Architecture, 2007, 2008, 2016 (twice)  
Università degli Studi di Milano Bicocca, Computer Science, Milan, Italy, 2007  
University of the West of England (UWE), Faculty of the Built Environment, December 2007  
University of Calgary, Alberta, Canada, Department of Geomatics Engineering, January 2008  
Royal Institute of Technology (KTH), Stockholm, Sweden, October, 2008, 2011  
Institute of Space and Earth Information Science, Chinese University of Hong Kong, June 2009  
University of Tampere, Department of the Built Environment, Finland, February 2010, August, 2017  
University of Amsterdam, Department of Urban Studies, Netherlands, March 2010  
University of Surrey, Department of Sociology, April 2010  
Memorial University, Newfoundland, Canada, Department of Geography, September 2010  
University of Zaragoza, Spain, Department of Analytical Economics, December 2010

University of Derby, Built Environment, January 2015  
ETH Zurich: Departement Architektur, June 2014 (also acted as advisor)  
ETH Zurich: Institute for Transport Planning and Systems (IVT), March 2015  
UWA: University of Western Australia Business School, March 2015  
University of Northumbria: Architecture, September 2015  
Université Paris 6, l'Université Pierre et Marie Curie, October 2015  
Ecole Polytechnique Federale de Lausanne, Laboratory of Geographic Information Systems, 2016  
University of St. Andrews, School of Geography and Geosciences, June 2016  
University of Grenoble, Department of Engineering, April, 2017  
School of Graduate Studies, Universiti Putra Malaysia, September, 2017

*Research Degrees: Higher Doctorates (HDR, ScD, & DSc)*

Université Louis Pasteur, Strasbourg, Department of Geography, 2005  
The University of Cambridge, School of Architecture, 1985, 2015  
The University of Bristol, Department of Geography, 1981

*Assessor for Readership and Chair Appointments*

Concordia University 2001; University of Illinois at Chicago 2001; Royal Holloway 1999; University of Southampton 1999 2000; University of California at Los Angeles 1998 2003; MIT 1998; University of California at Berkeley 1998; University of Iowa 1997; Royal Holloway 1997; University of Leicester 1997; Georgia Institute of Technology 1997; University of Pennsylvania 1997; Anglia Polytechnic University 1997; University of Connecticut 1996; University of Nova Scotia 1996 1997; University of Ottawa 1996; University of Lancaster 1996 1999; University of Wales 1995 1996 1999 2000; University of Manchester 1994; University of Leeds 1993 1999; Universiti Sains Malaysia 1992; University of Liverpool 1992 1994; Loughborough University 1991; University of Cambridge 1990 1992; University of California at Santa Barbara 1990 1996; University of Wales 1989 1994; University of Leeds 1988 1989 1991; University of Queensland 1987; University of Hong Kong 1987 1988 1990 1991 1994; Open University 1986; Coventry Polytechnic 1986; Ohio State University 1985; University of Virginia 1985; University College London 1984 1985 1989 1990 1995 1997; University of Illinois 1984 1990; I was UGC assessor for the 'new blood' lecturer appointments in my field 1983-1985.

*I am no longer keeping a record an updated record in my CV of this advice. The number and nature of the Chair appointments in the UK university system has changed and requests for such references are now routine.*

*Research Activities: Editorial*

Editor, **Environment and Planning B** since 1985; Co-editor 1981-1985.

**Member, Editorial Advisory Boards**

*Current*

Landscape Research 2001  
 URISA Journal 2000  
 Transactions in GIS 1998  
 Regional Development Studies 1997  
 Applied Geography 1996

Discrete Dynamics 1997

International Planning Studies, 1995  
 Computers, Environment, & Urban  
 Systems 1992  
 Spatial Analysis & Policy  
 Applications 2007  
 Annals of GIS, 2007

*Previous*

Regional Studies 1971-1997  
 Socio-Spatial Dynamics 1990-1996  
 Geographical Analysis 1985-1988  
 Geography Review 1987-1991  
 Annals of Regional Science 1979-  
 1988  
 Journal of Planning Literature 85-  
 96  
 Sistemi Urbani 1978-1990  
 Environments 1985-1990  
 Geographical Research Forum 1982-  
 5  
 Land Use and Transport 2007 to  
 2012  
 Complex Networks, 2013 to 2018

I have reviewed articles submitted to the following journals as well as for those I have been concerned with through the editorial board: Applied Geography, Area, Annals of Regional Science, Annals of the Association of American Geographers, Building Research and Information, Bulletin of Mathematical Biology, Cartographica, Cartographic Journal, CATMOG, Construction Management and Economics, Demography, Development Studies, Economic Geography, Environment and Planning A, B and C, Environmental Science and Policy, European Journal of Operational Research, European Planning Studies, Europhysics Letters, Geographical Systems, IEEE Transactions on SMC, Information Communication and Society, International Journal of Geographical Information Systems, International Regional Science Review, Journal of the American Planning Association, Journal of Economic Behavior and Organization, Journal of Economic Geography, Journal of Geography in Higher Education, Journal of Industrial Ecology, Journal of Planning Theory, Journal of Regional Science, Journal of the Royal Town Planning Institute (The Planner), Journal of Theoretical Biology, Journal of Urban Design, Land Use Policy, Landscape and Urban Planning, Letters in Spatial and Resource Sciences, Management Science, Mathematical Population Studies, Mosaic Journal, Nature, PNAS, Proceedings of the Royal Society A, Papers in Regional Science, Photogrammetric Engineering and Remote Sensing, Physical Review Letters, Physical Review E, Physica A, Physica D, Social Sciences and Information Studies, Professional Geographer, Presence, Psychological Reports: Perception and Motor Skills, Progress in Human Geography, Progress in Planning, Public Library of Science (PLOS) One, Regional Development Studies, Town Planning Review, Third World Planning Review, Transactions of the Institute of British Geographers, Transportation, Transportation Research A, B, and C, Urban Geography, Urban Studies.



I have reviewed proposals for books and journals for the following publishers: Allen and Unwin, Addison-Wesley, Blackwells, Butterworths, Cambridge University Press, Chapman and Hall, Croom Helm, Gordon and Breach, Guilford Press, Hutchinson, Longmans, Methuen, MIT Press, Oxford University Press, Pergamon, Pion, Prentice-Hall, Rowman and Littlefield, Routledge, Sage, Spon, Springer, Taylor and Francis, and John Wiley.

### *Research Activities: Grants Awarded*

I have received many small grants and consultancies for CASA not detailed here, a list of which might be obtained from [casa@ucl.ac.uk](mailto:casa@ucl.ac.uk) and from our web site [www.casa.ucl.ac.uk](http://www.casa.ucl.ac.uk)

Horizon 2020: HARMONY: Research and Innovation Action No. 815269 – Spatial & Transport Planning Tools, €1,150,358.00 to UCL of €7.4m 2019-2022 (with 20 other partners)

ESRC SIMETRI: Sustainability Indicators for Sustainable Mobility and Equality in mega-city Regions: €889,227 (with Birkbeck, Kings and University of Shenzhen Consortium, PRC), 2019-2022

MacArthur Foundation: Applicable Urban Informatics: £-200,000: 2015-2018

ESRC RESOLUTION: REsilient Systems fOr Land Use TransportatION: ES/N011449/1, £212,494, 2015-2017

EPSRC Digital Economy Phase 2: UK Regions Digital Research Facility (UK RDRF) EP/M023583/1, 2015-2020

ESRC: CDRC: Consumer Data Research Centre: Retail Business Data Safe, ES/L011840/1, 2014-2019 £6,117,615 (mainly Geography UCL)

TSB INNOVATEUK: Future Cities Catapult: Demonstrator Models, 01/10/2014-30/09/2016: £595K

EU-FP7: INSIGHT: Innovative Policy Modelling and Governance Tools for Sustainable Post-Crisis Urban Development £422K to UCL, 1/10/2013 - 30/9/2016

ESRC: LS-CeLSiuS: The Longitudinal Study: £156K to CASA, 1/10/2012-30/9/2017

EU-FP7: EUNOIA Project: Evolutive User-centric NetwOrks in Intraurban Accessibility: 2012-2014: 275K euros to UCL, 1/10/2012-30/9/2014

ESRC: TALISMAN (geospaTial datA anaLysIS & siMulAtioN): ES/I025634/1: 2011-2014: £662,334

EPSRC: ANALOGIES (Analogues of Cities): EP/I016791/1, 2010-2012: £249,000

European Research Area Network (ERA-NET) Complexity-NET: COSMIC (Complexity in Spatial DynaMICs): EP/I018433/1, 2010-2012: 498,245 Euros (236,447 to UCL) (£181,094)

ERC (European Research Council): The MECHANICITY Project (Morphology, Energy & Climate cHANge In the CITY): 249393 ERC-2009-AdG. 2010-2015: 2,393,243 Euros (£1,869,444)

EPSRC: ENFOLD-ing (Explaining, modellIng, and FOrecasting gLobal Dynamics): EP/H02185X/1, 2010-2015: £2,954,027

EPSRC: SCALE (SMALL CHANGES LEAD TO LARGE EFFECTS): Changing Energy Costs in Transport and Location Policy): EP/G057737/1 2009-2012, £823,922

EPSRC: ARCADIA: Adaptation and Resilience in Cities: Analysis and Decision making using Integrated Assessment: EP/G060983/1 2009-2012: £109,883

ESRC: GENeSIS: Generative e-Social Science for Social-Spatial Simulation, RES-149-25-1078, 2008-2012, £1.81m (with the Centre for Spatial Analysis and Policy, University of Leeds)

GLA Economics: Research Fellowship in Urban Systems: £105,000, 2007-2010

EPSRC: LUCID: The Development of a Local Urban Climate Model and its Application to the Intelligent Development of Cities, 2007-2010, part of £608,175 to UCL

NERC/EPSRC/ESRC: Tyndall Centre Phase 2: Cities Research Theme, 2006-2007, £27,924

ESRC: e-Social Science Hub: The GEOVUE Project, RES-149-25-102, 2005-2008: ~£400,000

BOC (British Oxygen) Foundation: Pollution and Virtual London, 2005-1006: £25,000 of £50,000 with Kings College Environment Research Group and APRIL

London Connects, GLA and ODPM: Virtual London Project: 2003-2004: 2005-2006 ~£50,000

EPSRC: Spatially Embedded Complex Systems Engineering (SECSE): 2004-2009: £333,000 of £1.6m

EPSRC: Children's Activities, Perceptions and Behaviour in the Local Environment (CAPABLE): 2004-2006, £120,885 of £385,900

EU/Interregio: ESPON: European Spatial Observation Network: 2003 - 2005: £37,000

ESRC (Economic and Social Research Council): Urban Growth and Complexity, 2002 - 2005, £109,345 (Research Fellowship Teaching Replacement)

EPSRC (Engineering and Physical Sciences Research Council): The Retail Systems Environment, 2001 - 2002, £45,000

EU: SCATTER: Sprawling Cities And Transport: from Evaluation to Recommendations, European Commission Fifth Framework Programme, Proposal n° EVK4-2001-00083, 2002- 2004, £92,678

JISC (Joint Information Systems Committee): DNER Digital Egypt for Universities (with UCL Petrie Museum), 2000 -2003, £178,343

ESRC (Economic and Social Research Council): Multi-Agent Approaches to Urban Development Dynamics, 1999 - 2004, £181,515 (Part of the ESRC Priority Network in Complex and Dynamic Processes)

EPSRC (Engineering and Physical Sciences Research Council): The Sustainable Town Centre, 1999 - 2001, £108,000

EPSRC (Engineering and Physical Sciences Research Council): Partnerships in the Public Understanding of Science, The Virtual City, 1999 - 2000, £19,000

ESRC (Economic and Social Research Council) Evaluation of the ESRC-JISC 1991 Census Programme, 1998 - 1999, £10,000

Department of the Environment: The Definition of Town Centres: Pilot

Project, Planning and Land Use Statistics Division, Planning Research Programme 1998-2001, £278,000.

Office of Science and Technology, Department of Trade and Industry and EPSRC, Technology Foresight Challenge: A Virtual Reality Centre for the Built Environment, £980,000, 1997-2000

Department of the Environment: The Definition of Town Centres: Planning and Land Use Statistics Division, Planning Research Programme 1996-1997, £94,000

JISC (Joint Information Systems Committee) JTAP The VENUE Project: Virtual Environments for Urban Environments, HEFCE, £150,000, 1996-1998

The National Science Foundation Collaborative Grant: Three Dimensional Modeling of Fish Populations in Lake Ontario (with Buffalo State College Great Lakes Center and the NCGIA at SUNY-Buffalo): \$73,000, 1995-1996

Sun Microsystems, Workstation Equipment for the Geographic Information and Analysis Laboratory: \$80,840, 1991-1992

The National Science Foundation Core Grant for the NCGIA at SUNY-Buffalo, Fourth Year Renewal: \$3.3m, 1991-1992; Fifth Year Renewal: \$3.6m, 1992-1993; Sixth Year 1993-1994: \$3.4m; Seventh Year 1994-1995: \$3.4m

Continuing Professional Development for Planning Practice, South Wales Branch of the Royal Town Planning Institute, RTPI 1988-1990: £3400

Regional Research Laboratory for Wales and South West England (held jointly with I. Bracken, P. A. Longley and N. Wrigley): ESRC 1986-1991: £19,900 (Pilot Project); £232,000 (Full Project)

'New Blood' Lectureship awarded to UWIST (1984-1989) in the area of my research 'Computer Modelling in Urban and Regional Planning': recipient Dr. P. Longley, £82,000

Spatial Interaction Analysis: Leverhulme Trust Visiting Commonwealth Research Fellowship Award to UWIST 1981-1982: £4860

Formal Models of the Planning Process: A Test of Coleman's Model: SSRC 1981-1983: £13,900

Information Theory in Spatial Aggregation and Modelling: SSRC 1980-1981: £9470

Systems Analysis in Urban Policy Making and Planning: NATO Advanced Research Institute, Brussels, Belgium (held jointly with Dr. B.G. Hutchinson, University of Waterloo): 1978-1983, conference held New College, Oxford 1980: \$22,500

The Design of Geographical Systems for Land Use and Transport Modelling: SSRC 1974-1975: £4650

### *Research Activities: Grants Assessment*

I have reviewed many grant proposals for the Austrian Research Council, the Australian Research Council, the British Academy, The Royal Society, the National Science Foundation (NSF), Canada Council, ETH (Zurich), The Israeli Research Foundation, the Swiss Research Council, EPSRC, ESRC, NERC, the Arts and Humanities Research Board (AHRB), the Nuffield

Foundation, the Leverhulme Foundation, and so on.

*Research Activities: Conference Organization*

The Comparative Genetics of Cities, with ASU and Newcastle Universities, held at UCL, May 21-24<sup>th</sup> 2010

Virtual Geographic Environments: An International Conference on Developments in Visualization and Virtual Environments in Geographic information Systems, Chinese University of Hong Kong, January 2008

The Ninth International Conference on Computers in Urban Planning and Urban Management, UCL, June-July 2005

The Eighth International Conference on Computers in Urban Planning and Urban Management, Sendai, Japan, June 2003

The Sixth International Conference on Computers in Urban Planning and Urban Management, University of Venice, September 1999

Measuring and Representing Accessibility in the Information Age, NCGIA Varenus Workshop, Pacific Grove CA, November 1998 (Steering Group)

The Fifth International Conference on Computers in Urban Planning and Urban Management, IIT, Powai, Bombay, December 1997

NCGIA Specialist Workshop on Spatial Technologies, Geographic Information, and the City, Baltimore, Maryland, September 1996

The Fourth International Conference on Computers in Urban Planning and Urban Management, University of Melbourne, Australia, July 1995

GIS and Spatial Modelling, a workshop supported by ESRC and NCGIA held at the University of Bristol, UK, June 1994

The Third International Conference on Computers in Urban Planning and Urban Management, Georgia Institute of Technology, Atlanta, July 1993

Fourth International Workshop on Technological Change and Urban Form: Productive and Sustainable Cities, University of California at Berkeley, April 1993

The Second International Conference on Computers in Urban Planning and Urban Management, Oxford Polytechnic, Oxford, UK, July 1991

Third International Conference on Innovation, Technological Change and Spatial Impacts, Selwyn College, University of Cambridge, September, 1989

The First International Conference on Computers in Urban Planning and Urban Management, University of Hong Kong, August 1989

British Computer Society Computer Graphics and Displays Group, Meeting on The State of the Art in Computer Cartography, London, November 1987

British Computer Society Computer Graphics and Displays Group, Meeting on Graphics for Designers, London, January 1987

British Section of the Regional Science Association, Computer Methods Sessions, Annual Conference, University of Manchester, September 1985

International Workshop on Innovation, Technological Change and Spatial Impacts, CSIRO, Melbourne, Australia, August 1985

RTPI Conference on Information Technology in Planning, South Bank Polytechnic, October 1983

New Directions in Urban Modelling, An International Conference organized at the University of Waterloo, Ontario, July 1983

New Technology and Urban Form, An International Seminar organized in association with CSIRO Melbourne, held at the University of Waterloo, Ontario, July 1983

NATO Advanced Research Institute on Systems Analysis in Urban Policy-Making and Planning, New College, Oxford, September 1980

PARC '79, Planning, Architecture and Computers: An International Conference organized with Online Conferences, Berlin, May 1979

*I have presented many lectures at UK, overseas universities, and professional forums during my academic career. A list of these is not included here but available if required.*

### *Professional Practice and Academic Consulting*

*CASA currently has a number of consulting projects with a research emphasis organized through UCL Business which are part of our wider research. All such contracts have been so organised in this way in the last 10 years and are thus not listed here*

Consultant to the ESRC Policy and Evaluation Division, Swindon, UK, Evaluation of the ESRC-JISC 1991 Census of Population Programme January - June 1999

Consultant to the Open University, Cities and Technology: From Babylon to Singapore Course: Preparation of the Audi Cassette: Wired Cities, Virtual Cities, December 1998

Consultant to the MedStar Project on the impact of IT on the future development of Arriyadh, Arriyadh Development Authority, Arriyadh, Saudia Arabia September 1998

Consultant to the project "Urban Simulation for Sustainable Development in the Pearl River Delta", Centre for Urban Planning and Environmental Management, University of Hong Kong, and the Institute of Geography, Guanzhou Academy of Sciences December 1997

Consultant to the INIFAP (Instituto Nacional de Investigaciones Forestales Y Agropecuaris), Mexico City, on GIS Systems for Forest Planning July 1994

Course Lecturer, Geographical Information Systems in Urban and Regional Planning, UNCRD, University of Hong Kong, and The Commonwealth Association of Planners, Center for Urban Planning and Environmental Management, University of Hong Kong July - August 1991

Consultant to UNESCO, PGI Programme, Paris, on Information for Planning and Decision-Making 15 March 1990 - 15 March 1991 (Paris and Beijing)

Consultant to UNESCO on the Training Course in Information Systems for Subnational Development Planning December 1989 - April 1990 (Paris and Los Banos, Philippines)

Consultant to the United Nations Centre for Regional Development, Nagoya, Japan on the UNCRD Research Project on Developing Strategies for Integrating Information Systems/Technology and Local/Regional

Planning in Developing Countries January 1989 - March 1989  
Consultant to Cardiff Bay Development Corporation, Socio-Economic Profile Project 1988  
Consultant to OECD Group on Urban Affairs, Environment Division, on Urban Policy Impacts of Technological, Social & Economic Change 1986-1987  
Consultant to BBC-TV Tomorrows World Programme, 27th June 1985: Item on "Fractals"  
Consultant to the SERC/ESRC Joint Transport Committee, Program Grant Application, Institute of Transport Studies, University of Leeds 1979 and 1979-1982 (Steering Committee)  
Consultant to the Open University, Faculty of Technology, Program Series: Modelling by Mathematics (TM281): Program 5: Shopping Models 1976-1977  
Consultant to Colin Buchanan and Partners, Midden Randstadt Subregional Study 1973-1976  
Consultant to the Berkshire, Hampshire and Surrey County Council, Area 8 Subregional Study 1973-1974

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*Part 2: Publications*
*In reverse chronological order*
*Books*

- 2018 **Inventing Future Cities**, The MIT Press, Cambridge, MA.  
 2013 **The New Science of Cities**, The MIT Press, Cambridge, MA.  
 2005 **Cities and Complexity: Understanding Cities with Cellular Automata, Agent-Based Models, and Fractals**, The MIT Press, Cambridge, MA, xxiii + 565 pp.  
 1994 **Fractal Cities: A Geometry of Form and Function**, Academic Press, London and San Diego, CA, xxii + 394 pp. (with P. A. Longley).  
 1987 **Microcomputer Graphics: Art, Design and Creative Modelling**, Chapman and Hall, London and New York, xii + 331 pp.  
 1976 **Urban Modelling: Algorithms, Calibrations, Predictions**, Cambridge University Press, Cambridge, xxv + 381 pp.

*Edited Books*

- 2012 **Agent-Based Models of Geographical Systems**, DOI 10.1007/978-90-481-8927-4\_37, Springer, Berlin and New York, xx + 732 pp. (co-edited with A. J. Heppenstall, A. T. Crooks and L. M. See)  
 2011 **Environment and Planning: Volume B: Planning and Design**, Sage, London, 513+xxvi (co-edited with Longley, P. A.)  
**Environment and Planning: Volume E: Foundations**, Sage, London, 527+xv, (co-edited with Elden, S., Thrift, N., Barnes, T. J., Peck, J., Longley, P. A. and Bennett, R. J.)  
**Virtual Geographic Environments**, Science Press, Beijing, China, vi + 350 pp. (co-edited with H. Lin), 2009, 2011 published by ESRI Press, Redlands, CA, vi + 350 pp. 2011.  
 2005 **GIS, Spatial Analysis, and Modeling**, ESRI Press, Redlands, CA, xiii + 480 pp. (co-edited with D. J. Maguire and M. F. Goodchild).  
 2003 **Advanced Spatial Analysis: The CASA Book of GIS**, ESRI Press, Redlands, CA, viii + 463 pp. (co-edited with P. A. Longley).  
 1996 **Spatial Analysis: GIS in a Modelling Environment**, Geoinformation International and John Wiley, Cambridge, UK, viii + 392 pp. (co-edited with P. A. Longley).  
 1995 **Cities in Competition: Productive and Sustainable Cities for the 21st Century**, Longman Australia Melbourne, London and New York, xii + 532 pp. (co-edited with J. Brotchie, E. Blakely, P. Hall, and P. Newton).  
 1991 **Cities of the 21st Century: New Technologies and Spatial Systems**, Longmans, London and Halsted Press, New York, xiii + 446 pp. (co-edited with J. Brotchie, P. Hall, and P. Newton).  
 1987 **Advances in Urban Systems Modelling**, North-Holland Press, Amsterdam, xi + 432 pp. (co-edited with B. G. Hutchinson).  
 1985 **Optimization and Discrete Choice in Urban Systems**, Springer-Verlag, Berlin, vi + 371 pp. (co-edited with B. G. Hutchinson and P. Nijkamp).

- 1983 **Systems Analysis in Urban Policy-Making and Planning**, Plenum Press, New York, xii + 619 pp. (co-edited with B. G. Hutchinson).

*Chapters in Books*

- 2020 The Smart City, in Richard T. LeGates and Frederic Stout (Editors) **The City Reader**, 7th Edition, Routledge, London, 503-515, 2020.  
 Complexity in Design: Optimal Location Through Spatial Averaging, in G. de Roo, C. Yamu, and C. Zuidema (Editors) **Handbook on Planning and Complexity**, Edward Elgar, Cheltenham, Glos UK, 302-317.  
 Defining Smart Cities: High and Low Frequency Cities, Big Data and Urban Theory, in Katharine S. Willis and Alessandro Aurigi (Editors) **The Routledge Companion to Smart Cities**, Routledge, London, XXX-XXX.  
 (with Chapman, G.) Chaos and Complexity, in Kobayashi, A. (Editor) **International Encyclopedia of Human Geography**, 2nd Edition. Vol. 2, Elsevier, New York, 2020, 133-141.  
 Defining Complexity in Cities, in Pumain, D. (Editor) **Theories and Models of Urbanization**, Springer Series Lecture Notes in Morphogenesis, Springer, Switzerland AG, 13-26.
- 2019 (with Arlinghaus, S. L., Arlinghaus, W. C., Beier, K-P., Naud, M., and Nystuen, J. D.), Chapter 6: Animap Abstraction: The Clickable Map, Virtual Reality, and More, in Sandra L. Arlinghaus, Joseph J. Kerski, Ann Evans Larimore, and Matthew Naud (Editors) **Spatial Thinking in Environmental Contexts: Maps, Archives, and Timelines**, Taylor and Francis CRC Press, Baton Rouge LS, 2020, 61-67.  
 (with Arlinghaus, S. L.), Chapter 8: 3D Charts: Greater London, 1901-2001: Georeferencing of Population Data and Rank-Size Patterns, in Sandra L. Arlinghaus, Joseph J. Kerski, Ann Evans Larimore, and Matthew Naud (Editors) **Spatial Thinking in Environmental Contexts: Maps, Archives, and Timelines**, Taylor and Francis CRC Press, Baton Rouge LS, 2020, 73-80.
- 2018 (with L. A. Bettencourt & M. Kirley) Understanding Coupled Urban-Natural Dynamics as the Key to Sustainability: The Example of the Galapagos, in Thomas Kvan & Justyna Karakiewicz (Eds.) **Urban Galapagos: Transition to Sustainability in Complex Adaptive Systems**, Springer Nature, Switzerland, 23-42.  
 Cheshire, J., Batty, M., Reades, J., Longley, P. A., Manley, E., and Milton, R. CyberGIS for Analyzing Urban Data, in Shaowen Wang, Michael F. Goodchild (Eds.) **CyberGIS for Geospatial Discovery and Innovation**, Springer, Heidelberg, DE, 33-52.
- 2017 Cities as Systems of Networks and Flows, in T. Haas and H. Westlund (Editors) In **The Post-Urban World: Emergent Transformation of Cities and Regions in the Innovative Global Economy**, Routledge, London, pp. 56-69.  
 Erhardt, G. D., Lock, O., Arcaute, E. and Batty, M. (2017) A Big Data Mashing Tool for Measuring Transit System Performance, in Piyushimita (Vonu) Thakuria, Nebiyu Tilahun and Moira Zellner



- (Editors) **Seeing Cities Through Big Data: Research, Methods and Applications in Urban Informatics**, Springer, Berlin and New York, pp. 257-278.
- (with Erhardt, G. D. and Arcaute, E.) Recommendations for big data programs at transportation agencies, in L.Schintler and Z. Chen (Editors) **Big Data for Regional Science**, Routledge, London, 292-303.
- Science in Planning: Theory, Methods and Models], in Thomas W. Sanchez (editor) **Urban Planning Knowledge and Research**, Taylor and Francis, New York, in press.
- Producing Smart Cities, in in Kitchin, R., Lauriault, T. P., and Wilson, M. W. (Editors) **Understanding Spatial Media**, Sage, London, pp. 204-215.
- (with Lin, H. and Chen, M.) Virtual Realities, Analogies and Technologies in Geography, in Barney Warf (Editor) **Handbook on Geographies of Technology**, Research Handbooks in Geography Series, Edward Elgar, Cheltenham, UK, pp. 96-112.
- Data about Cities: Redefining Big, Recasting Small, In Kitchin, R., Lauriault, T. P. and McArdle, G. (Editors) **Data and the City**, Routledge, London, pp. 31-43.
- A Science of Cities: Prologue to a Science of Planning, in Beatrix Haselsberger (Editor) **Encounters in Planning Thought: 16 Autobiographical Essays from Key Thinkers in Spatial Planning**, Routledge, London, pp.
- (with Wise, S., and Crooks, A.) Transportation in Agent-Based Urban Modelling, in Namazi Rad, M.R., Padgham, L., Perez, P., Nagel, K., Bazzan, A. (Editors) **Agent Based Modelling of Urban Systems**, Springer, Berlin, pp. 129-148.
- Cities in Disequilibrium, In Johnson, J., Nowak, A., Ormerod, P., Rosewell, B., and Zhang, Y.-C. (Editors) **Non-Equilibrium Social Science and Policy: Introduction and Essays on New and Changing Paradigms in Socio-Economic Thinking**, Springer, New York, pp. 81-96.
- 2016 Urban Resilience: How Cities Need to Adapt to Unanticipated and Sudden Change, In E. Pate-Cornell, W. B. Rouse, and C. M. Vest (Editors) **Perspectives on Complex Global Challenges: Education, Energy, Healthcare, Security, and Resilience**, John Wiley, New York, 169-171
- Evolving a Plan: Design and Planning with Complexity, in J. Portugali and E. Stolk (Editors) **Complexity, Cognition, Urban Planning and Design**, Springer Proceedings in Complexity, Springer International Publishing Switzerland, DOI 10.1007/978-3-319-32653-5\_2, 21-42
- Alexander's Challenge: Beyond Hierarchy In City Systems and Systems of Cities, in M. W. Mehaffy (Editor) **A City is Not a Tree**, 50th Anniversary Edition, Sustasis Press (in association with The Center for Environmental Structure), Portland, OR, 37-45
- Cities as Flows in a Circular Economy, in Webster, K., Johnson, C., Blériot, J., and Gravis, L. (Editors) **A New Dynamic 2: Effective Systems in a Circular Economy**, Ellen MacArthur Foundation

- Publishing, Cowes, UK, 176-193  
 Creative Destruction, Long Waves and the Age of the Smart City, in Knowles, R. D., and Rozenblat, C. (Editors) **Sir Peter Hall: Pioneer in Regional Planning, Transport and Urban Geography**, Springer Briefs on Pioneers in Science and Practice No 52, Springer, Mosbach, DE, 81-97
- 2015 (with Hudson-Smith, A., Hugel, S., and Roumpani, F.) Visualising Data for Smart Cities, in Vesco, A., and Ferrero, F. (Editors) **Handbook of Research on Social, Economic, and Environmental Sustainability in the Development of Smart Cities**, IGI Global, Hershey, PA, 339-362.  
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### *Book Reviews*

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