

# ED MANLEY

Address: -  
Telephone: -  
E-Mail: -  
Website: UrbanMovements.posterous.com  
Twitter: @EdThink

Date and Place of Birth: -  
Languages: English (fluent), French (good), Arabic (basic).

## EDUCATION AND QUALIFICATIONS

2009 – Present      **University College London, United Kingdom**  
*EngD in Urban Sustainability and Resilience* (Thesis title: Multi-Agent Simulation of Traffic Dynamics on Urban Road Networks). Supervised by Prof Tao Cheng, Prof Alan Penn (Academic) and Mr Andy Emmonds (Industrial, Transport for London).  
*MRes with Merit in Urban Sustainability and Resilience* (Thesis title: Simulation of Non-Recurrent Congestion on Urban Road Networks)  
*Tools and languages used:* ArcGIS, Space Syntax, Gephi, Netlogo, Pajek, VISSIM, VISUM, MATSim, Oracle Enterprise DBMS; Java, Repast, R, Python, C++, CUDA, SQL.  
*Methods and Techniques used:* Agent-based Simulation, GIS, Oracle Database Management, Space Syntax, Econometric modelling, Discrete Choice modelling, Markov Chain Monte Carlo simulation, Network Analysis (including community detection), Cluster computing, Spatiotemporal Data Mining.

2005 – 2006      **University of Leeds, Leeds, United Kingdom**  
*MSc with Merit in Multidisciplinary Informatics with GeoInformatics*  
Tools and languages used: ArcGIS, ArcInfo Workstation, MapInfo, Idrisi, Weka, IRIS Explorer, XMDV Tool; Java, Python, Visual Basic.NET.

2001 – 2004      **University of East Anglia, Norwich, United Kingdom**  
*BSc with First Class Honours in Business Information Systems*

## PUBLICATIONS

### Journal Papers

Cheng, T., Haworth, J., Manley, E. 2012. Advances in Geocomputation (1996-2011). Computers, Environment and Urban Systems. 36. 6. 481-487.

Manley, E., Cheng, T., Penn, A., Emmonds, A. Combining Agent-based Modelling with Macroscopic Traffic Simulation for Large-Scale Behaviourally-Realistic Representations of Urban Traffic Flow. Computers, Environment and Urban Systems. (Under Review)

Manley, E., Cheng, T. The Role of Human Cognition in Modelling Complex Urban Traffic Dynamics. Proceedings of the National Academy of Sciences. (Under Review)

Cheng, T., Manley, E. Tipping Points in Road Traffic Congestion: Why Driver Behaviour Matters. *Journal of Geographical Systems*. (Under Review)

Manley, E., Cheshire, J. Geospatial Biases in Social Media Datasets. (In Preparation)

Manley, E., Penn, A., Peel, L. Classifying Urban Neighbourhoods through Spatial Community Detection. (In Preparation)

Quercia, D., Manley, E. Quantifying Recognisability in London Regions. (In Preparation)

Reades, J., Demsar, U., Manley, E., Batty, M. Revisiting the City Centre: a (New) Study of Functional Regions in London using Taxi Flows. (In Preparation)

### **Book Chapters**

Cheshire, J., Batty, M., Reades, J., Longley, P., Manley, E., Milton, R. *CyberGIS for Analysing Urban Data*. (Under Review)

### **Conference Proceedings**

Manley, E., Cheng, T., Haworth, J. Markov Chain Topological Route Selection. *GeoComputation 2013*. (Under Review)

Haworth, J., Cheng, T., Manley, E. Improving Forecasting under Missing Data on Sparse Spatial Networks. *GeoComputation 2013*. (Under Review)

Manley, E. Estimation of the Subjective Topological Structure of Action Spaces using Learning Agents. *GIS Research UK 2013*.

Manley, E., Cheng, T., Penn, A. 2012. Modelling Movement in the City: The Influence of Individuals. *Proceedings of 15th AGILE International Conference on Geographic Information Science*. Avignon, France.

Chow, A.H.F., Tsapakis, I., Manley, E., Tanaksaranond, G., Heydecker, B.G., Cheng, T., Emmonds, A. 2012. Fusion of Heterogeneous Urban Traffic Data. *Proceedings of 1st European Symposium on Quantitative Methods in Transportation Systems*.

Manley, E., Cheng, T., Emmonds, A. 2011. Understanding Route Choice using Agent-based Simulation. *Proceedings of the 11th International Conference on Geocomputation*, July 20-22 2011, London, UK. pp. 54-59.

Cheng, T., Anbaroglu, B., Manley, E. 2011. Spatio-Temporal Scan Statistics to Analyse Network Emergence. *Proceedings of 58th Annual North American Meetings of the Regional Science Association International*. Miami, USA.

Manley, E., Cheng, T. 2011. Multi-Agent Simulation of Drivers Reactions to Unexpected Incidents on Urban Road Networks. *Proceedings of GIS Research UK 2011*. Portsmouth, UK. pp. 280-285.

Manley, E., Cheng, T. Understanding Road Congestion as an Emergent Property of Traffic Networks. 2010. *Proceedings of the International Multi-Conference on Complexity, Informatics and Cybernetics*. Orlando, USA. pp. 104-109.

### **Other Publications**

Manley, E. Identifying clusters of activity on London's roads. *Guardian Data Blog*. 27th November 2012. Available online: <http://www.guardian.co.uk/news/datablog/2012/nov/27/identifying-clusters-activity-london-roads>

Manley, E. Queen's diamond jubilee celebrations: where were the tweeting masses? Guardian Data Blog. 11th June 2012. Available online: <http://www.guardian.co.uk/news/datablog/2012/jun/11/queen-s-diamond-jubilee-twitter-tweeting>

Manley, E. Swearing on Twitter: where in London is worst for \*\$%!\*@\*?!. Guardian Data Blog. 4th May 2012. Available online: <http://www.guardian.co.uk/news/datablog/2012/may/04/twitter-swearing-london>

## **INVITED TALKS**

Association of American Geographers Conference 2013 – Incorporating Heterogeneous Spatial Cognition into Urban Road Transportation Simulation - What Improvement on Conventional Methods? – 9<sup>th</sup>-13<sup>th</sup> April 2013

University of Glasgow Information Retrieval Group – Detection and Visualisation of Linguistic Communities in London using Twitter Data – 25<sup>th</sup> February 2013

European Conference on Complex Systems – Understanding Urban Traffic Patterns using (Big) Data and Agent-based Simulation – 5<sup>th</sup> September 2012

Institute of Cartographers Conference – Modelling the Formation of Road Congestion through the Influence of Individual Behaviour – 3<sup>rd</sup> September 2012

UCL Space Group Seminar – Modelling the Formation of Road Congestion through the Influence of Individual Behaviour – 22<sup>nd</sup> June 2012

Crime-Policing-Citizenship Project Launch – Agent-based Simulation of Non-Recurrent Congestion – 18<sup>th</sup> May 2012

UCL Energy Institute Breakfast Seminar – Agent-based Simulation – 13<sup>th</sup> March 2012

Association of American Geographers 2012 – Integrating Agent-based Models with Macroscopic Traffic Simulation – 22<sup>nd</sup> February 2012

UCL Geospatial Seminar Series – Understanding and modelling non-recurrent urban road congestion – 29<sup>th</sup> November 2011

Association of American Geographers 2011 – Modelling the Impact of Unexpected Interruptions on Road Network Performance using Agent-Based Simulation – 13<sup>th</sup> April 2011

Lost in Space workshop – Simulation of Non-Recurrent Congestion – 3<sup>rd</sup> November 2010

UCL CASA Seminar – Simulation of Non-Recurrent Urban Road Congestion using Agent-based Simulation – 24<sup>th</sup> November 2010

## **AWARDS AND GRANTS**

Early Career Researcher Bursary – Royal Geographical Society – 2011

Engineering Doctorate Full Scholarship and Stipend – EPSRC and Transport for London – 2009 - 2013

Masters Full Scholarship and Maintenance – EPSRC – 2005 - 2006

Student of the Year – School of Computing Sciences, University of East Anglia – 2004

UCL Research Image of the Year – Twitter Languages of London – 2012

## **TEACHING EXPERIENCE**

2011 – 2012                      **University College London, London, United Kingdom**  
Postgraduate Teaching Assistant

Preparation and delivery of materials for taught courses and academic seminars in GIS, spatio-temporal data mining, and agent-based simulation, at undergraduate, postgraduate and graduate level. Assist in supervision of undergraduate and postgraduate research projects.

## **OTHER ACADEMIC AND ADMINISTRATIVE ROLES**

Reviewer for Journal of Geographical Systems – 2012 until present

Reviewer for Computers, Environment and Urban Systems – 2012 until present

Reviewer for 1<sup>st</sup> International Conference on Urban Sustainability and Resilience – 2012

Reviewer for GeoComputation – 2011

Local Organising Committee for 1<sup>st</sup> International Conference on Urban Sustainability and Resilience, University College London – 2012

Organisational Support for International Workshop on Spatio-Temporal Data Mining and GeoComputation, both at University College London – 2011

Student Representative for Urban Sustainability and Resilience Doctoral Training Centre – 2010 - 2011

Leader of Department of Civil, Environmental and Geomatic Engineering (University College London) Green Group – 2012

Student Member of Royal Geographical Society – 2011 to present

## **MEDIA COVERAGE**

Research has been covered in a range of national and international media, including:

Guardian (online and print editions), Metro (online and print editions), New Scientist (online edition) Daily Telegraph (online edition), Sky News (online edition), Atlantic Cities (online), Daily Mail (online edition), Phy.Org (online).

## **NON-ACADEMIC PROFESSIONAL EXPERIENCE**

2008 – 2009                    **HOST UK, London, United Kingdom**  
Programme Manager

Coordinating all key aspects of the charity's key operations, to ensure that delivery exceeds the expectations of customers and funders.

2007 – 2008                    **VSO, Maroua, Cameroon**  
GIS Development Advisor

Managing projects working with community leaders in the creation of new geographic information, with the help of GIS, to aid and encourage infrastructural development of the region.

2006 – 2007                    **VSO, Maroua, Cameroon**  
IT Specialist and Project Manager

Advised on IT system development and training at government ministry. Managing the project development and execution, including handling of substantial budget, of an English Language Resource Centre for Maroua.