UCL

Big Data and Intelligent Policing

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CPC Project Closing Workshop
Tuesday 7th June 2016
09:30-18:00

Chancellor's Hall,
Senate House
Malet Street,
London WC1E 7HU

www.ucl.ac.uk/cpc

Crime **Policing** **Citizenship**
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In May 2012, University College London began working with the Metropolitan Police Service on a major EPSRC-funded research project on Crime, Policing and Citizenship (CPC: www.ucl.ac.uk/cpc). The motivation was to develop new methods and applications in space-time analytics and emergent network complexity.

Throughout the funding period, CPC has uncovered patterning in crime, policing and citizen perceptions, at a range of spatial and temporal scales. The research team has been avowedly inter-disciplinary, drawing on geoinformatics, crime science, geography and computer science, and the over-arching objective has been to engineer effective solutions to real world crime problems.

This workshop will close the project by presenting the outcomes of the research. It will also provide a forum to discuss the role of Big Data in aspects of life that lie beyond intelligent policing. The workshop will be used to disseminate the findings across policing, government, industry and academia.

Tools developed for crime prediction and police patrol analysis will be demonstrated at the event.

UCL | METROPOLITAN POLICE | SpaceTimeLab for Big Data Anaytics | EPSRC Engineering and Physical Sciences Research Council | Research Councils UK Global Uncertainties Security for all in a Changing World

Programme

09:30-10:00	**Registration and Coffee**
10:00-10:30	**Session 1: Welcome and Introduction to CPC** Chair: Tao Cheng, UCL SpaceTimeLab
	Celia Caulcott, Vice-Provost (Enterprise and London), UCL
	Tao Cheng: CPC – Big Data and Intelligent Policing
10:30-11:30	**Session 2: Crime & Policing: Prediction & Evaluation** Chair: Kate Bowers, UCL Crime Science
10:30	Gabriel Rosser & Monsuru Adepeju: Network-based crime prediction
10:50	Monsuru Adepeju & Gabriel Rosser: Evaluating crime prediction maps
11:10	Toby Davies & Kira Kowalska: Crime and deterrence on street networks
11:30-12:00	**Coffee Break**
12:00-13:00	**Panel Discussion: New Forms of Data for Intelligent Policing** Chair: Paul Longley, UCL Geography
	Trevor Adams, Head of Data Development Team, Digital Policing, Metropolitan Police Service
	Olga Feldman, Technical Director, ARCADIS
	Michael Goodchild, Emeritus Professor of Geography, UC Santa Barbara
	Bill Oates, Chief Data Scientist, Office for National Statistics
	Alex Singleton, University of Liverpool, Deputy Director, CDRC
13:00-14:00	**Lunch**
14:00-15:30	**Session 3: Policing & Citizenship: Guardianship & Confidence** Chair: Trevor Adams, Metropolitan Police Service
14:00	Dave Stringer, Total policing, Chief Superintendent, Metropolitan Police Service
14:30	Jianan Shen: Analysing police activities and behaviours
14:50	Huanfa Chen & Sarah Wise: A real-time cooperative patrolling strategy
15:10	Artemis Skarlatidou & Dawn Williams: Public attitudes towards policing
15:30-16:00	**Coffee Break**
16:00-17:10	**Session 4: Keynote Lecture** Chair: John Shawe-Taylor, UCL Computer Science
16:00	Dirk Helbing, ETH, Zurich – Smart nations: opportunities and risks
17:00	**Closing**
17:10-18:00	**Reception (with demonstrations & posters)**
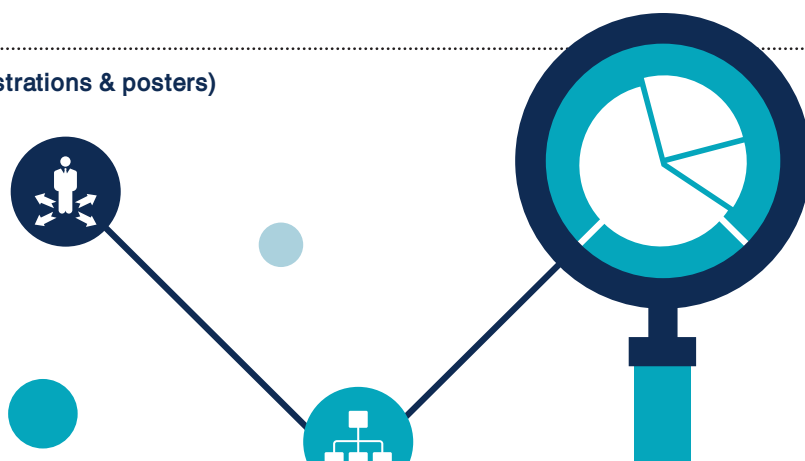
Speakers

Tao Cheng
Professor of Geoinformatics at SpaceTimeLab, UCL

Tao Cheng is the PI of the CPC project and the Director of the SpaceTimeLab. Her research interests span network complexity, geocomputation, space-time analytics and big data mining with applications in transport and mobility, policing, business, health, and natural hazards.

Trevor Adams,
Head of Data Development Team at the Metropolitan Police Service

Trevor Adams is the CPC project's industry contact with the Metropolitan Police Service (MPS). Within the MPS, he is responsible for developing new data sources and methods to utilise those data including performance information and predictive mapping.

Monsuru Adepeju
PhD student on the CPC project

Monsuru Adepeju is a final year PhD student on CPC project. His research focuses on developing novel techniques for the prediction of crime and evaluating the performance of such techniques.

Kate Bowers
Professor of Crime Science at the Department of Security and Crime Science, UCL

Kate Bowers is a co-investigator on the CPC project. She has worked in the field of crime science for over 20 years, with research interests focusing on the use of quantitative methods in crime analysis and crime prevention.

Dr Celia Caulcott
Vice-Provost (Enterprise) at UCL

Dr Celia Caulcott is the Vice-Provost (Enterprise) at UCL, with responsibility for delivering UCL's Enterprise agenda, seeking that we bring the greatest economic and societal benefit from all aspects of UCL. She is also leading the UCL London strategy, supporting UCL 2034.

Huanfa Chen
PhD student on the CPC project

Huanfa Chen's research is focused on developing police patrol routing strategy to cover crime hotspots effectively. His research interests also include machine learning, complex systems science, and agent-based modelling.

Toby Davies
Postdoctoral Research Associate at the Department of Security and Crime Science, UCL

Toby Davies has a background in mathematics, and his work concerns the application of mathematical techniques in the analysis and modelling of crime and other security issues.

Olga Feldman
Technical Director at Arcadis

Dr Olga Feldman is a mathematician and economist. She has been the Strategic Manager of Analytics in Transport for London, working on high profile projects including Crossrail 2. Recently she joined Arcadis as a Technical Director.

Michael Goodchild
Emeritus Professor of Geography at the University of California, Santa Barbara

Goodchild's research interests centre on geographic information science, spatial analysis and uncertainty in geographic data. He is a Foreign Member of the Royal Society, a Corresponding Fellow of the British Academy and a Fellow of the Royal Geographical Society.

Dirk Helbing
Professor of Computational Social Science at the Department of Humanities, Social and Political Sciences, ETH Zurich

Dirk Helbing is internationally renowned for his work on pedestrian crowds, vehicle traffic, and agent-based models of social systems. He coordinates the FuturICT Initiative, which focuses on the understanding of techno-socio-economic systems using smart data.

Kira Kempinska
PhD student on the CPC project

Kira Kempinska's work has been mainly focused on extracting patterns from police patrol movements. Her interests lie in the areas of machine learning, network analysis and probabilistic data modelling.
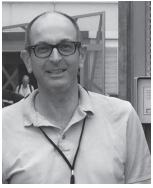
Paul Longley
Professor of Geographic Information Science at the Department of Geography, UCL

Paul Longley is a co-investigator on the CPC project. He also directs the ESRC Consumer Data Research Centre at UCL. His research interests are focused around socioeconomic applications of geographic information science in geo-temporal demographics, retailing, genealogy and urban modelling.

Bill Oates
Chief Data Scientist at the Office for National Statistics

Bill Oates oversees innovation in new data sources and analytical techniques for the Office for National Statistics and the Government Statistical Service in the UK. He is an experienced team leader and manager in the realm of data analysis and digital space.

Gabriel Rosser
Postdoctoral Research Associate at SpaceTimeLab, UCL

Gabriel Rosser's work is centred on developing new methods for crime risk prediction. His research interests also include the statistical analysis of spatio-temporal point data, machine learning and mathematical modelling.

John Shawe-Taylor
Professor of Computational Statistics and Machine Learning at the Department of Computer Science, UCL

John Shawe-Taylor is a co-investigator on the CPC project. He is the Director of the Centre for Computational Statistics and Machine Learning at UCL. His main research interest is statistical learning theory, with contributions in the fields of neural networks, machine learning and graph theory.

Artemis Skarlatidou
Postdoctoral Teaching and Research Fellow at the ExCiteS group, UCL

Artemis Skarlatidou is developing public mind maps of trust in policing for the CPC project. Her research interests include Human-Computer Interaction (HCI) and User Experience aspects (e.g. usability, aesthetics, trust) of geospatial technologies and especially of Web GIS representations for expert and public use.

Jianan Shen
PhD student on the CPC project

Jianan Shen's research focuses on pattern recognition of police patrol movements and behaviours. This involves the analysis of spatial-temporal trajectories and profiling of officer's behaviours.

Alex Singleton
Professor of Geographic Information Science at the University of Liverpool

Alex Singleton is a deputy director and co-investigator at the Consumer Data Research Centre. He is interested in how social and spatial complexities of individual behaviours can be represented and understood within a framework of quantitative social science and computer modelling.

Dave Stringer
Chief Superintendent at the Metropolitan Police Service

Ch. Supt. Dave Stringer works within community engagement in the Metropolitan Police. He has spent a large proportion of his 23 year career in community policing. His current responsibilities include youth engagement, youth justice and hate crime.

Dawn Williams
PhD student on the CPC project

Dawn Williams's work is focused on spatio-temporal modelling of public attitudes towards the police. Her research interests include spatio-temporal data mining, visualization, big data analysis and sustainable development.

Sarah Wise
Senior Research Associate at the Centre for Advanced Spatial Analysis, UCL

Sarah Wise's research interests lie in exploring and forecasting the development of systems involving people, infrastructure, and information using agent based modelling.