

# Dr Crispin Cooper

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Referees available on request

## Education

**October 2006 – July 2010:**

**PhD in City and Regional Planning and Computer Science, Cardiff University**

Thesis title: "Exploratory analysis of large spatial time series and network interaction data sets: house prices in England and Wales." During the course of this research I have acquired skills/knowledge in

- Geographic Information Systems
- Spatial statistics
- Use of census, Ordnance Survey, Land Registry data
- Advanced data visualisation
- Metadata standards
- Spatial time series analysis
- Spatial interaction modelling
- Spatial autocorrelation
- Grid computing
- Research and presentation, communication and teaching.

I also led student seminars in comparative programming languages, helped develop new course material for transport studies and was a tutor for practical workshops in computer science.

**October 1999 – July 2002:**

**MA (Hons) in Computer Science, University of Cambridge**

First class achieved in Part 1A Physics and Parts 1A and 1B Computer Science.

Overall degree class 2.1. Final year project on public transport route planning algorithms.

**June 1998: A-levels from Malvern College, Worcestershire** Physics, Chemistry, Maths, German (grades AAAB); distinction in Maths/Physics STEP/S papers, also French to AO level.

## Employment

**February 2011 - present: Research Associate, Sustainable Places Research Institute**

Developing spatial network analysis software for Cardiff University.

**November 2010 – December 2010: Postdoctoral Research Associate, Cardiff University**

Extending and publishing the findings of my PhD, in the Department of Computer Science.

**August 2006 – September 2006: Development volunteer, Rakai Province, Uganda**

Investigated theft of money from charitable project, collaborated with local community and international organizations to make a recovery plan. Developed new curriculum material for teacher training.

**January 2006 – August 2006: Software Engineer, Cambridge Silicon Radio**

Worked with small software team to enhance development toolchain (IDE/linker/embedded virtual machine), using C/C++, Java, Python, XAP assembler.

**March 2003 - December 2005 (continuous until January 2005):**

**Research Associate, Intelligent Systems Group, University of York**

Researcher on an EU funded project, in a team of six (locally) and sixteen (internationally).

**Soft skills:** developed EPSRC research proposal concerning Artificial Life and Evolvable Hardware (subsequently awarded £330,000 in funding). Inducted new team members to the research, sharing workload where necessary. Presented and published results at project and sponsor meetings and conferences across Europe. Helped out with undergraduate teaching.

**Technical skills:** Assisted with design of novel FPGA/microprocessor architecture supporting evolution (genetic algorithms), growth, self-repair and learning; created applications in the field of finite element audio model optimization. Visual C++/Windows, gcc/Linux, Perl, Matlab/Octave, bash, ModelSim.

This role was continuous until January 2005 and part time thereafter; I also worked as a private mathematics and physics tutor during 2005.

**September 2002 – November 2002: Software Engineer, Newtechnica**

Worked for information security start-up, the venture failed but was valuable experience!

**April 1999 – August 1999: Rock Climbing Instructor, Acorn Adventure, Cumbria**

**January 1999 – March 1999: I.T. Support Technician, Raab Karcher, Germany**

## Transferable Skills & Other Interests

I have completed several staff development courses with previous employers; however I also hope that some of my other interests demonstrate organizational, teamwork, communication, business and negotiation skills:

- **Outdoor pursuits:** I am a keen rock climber and mountain biker, and have organized expeditions in numerous locations around the world, often requiring strong teamwork in testing conditions. In 2009 I was part of a team which pioneered several new ascents in Morocco. From 2000-2002 I served on my university mountaineering club committee, and have passed qualifications for single pitch instructor (climbing) and coastal skipper (sailing).
- **Music:** I play piano and synthesizers, write and perform music and have put on several events around Wales, in some cases co-ordinating a team of 50 crew, negotiating contracts with venue owners and managing the budget and promotion; also producing websites (by hand) and promotional materials (in Adobe Illustrator, Photoshop etc).
- From 1999-2001, I received flying training from Cambridge University Air Squadron – reaching a level where I could perform aerobatics while solo – though left after deciding that a military career wasn't for me. Prior to this I led RAF Cadet training activities at school, and obtained the Gold Duke of Edinburgh award.

## Academic Publications

Cooper, Jones, Webster (2011): *Exploratory visualization for large spatio-temporal and spatial interaction (flow) data sets*. Under review for IEEE Transactions on Visualisation and Computer Graphics.

Cooper, Webster, Jones (2011): *Methods for exploratory analysis of spatial time series, spatial interaction and spatial aggregate data: the ripple effect in house prices, migration, social and physical distance*. Under review for Environment and Planning B.

Cooper (2010): *Visualisation of UK census and housing market interaction data*, Proceedings of GISRU2010, University College London.

Howard, D.M., Tyrrell, A.M., Murphy, D.T., Cooper, C., and Mullen, J. (2009): *Bio-inspired evolutionary oral tract shape modelling for physical modelling vocal synthesis*, Journal of Voice 23(1).

Howard, Tyrrell, Cooper (2007): *Evolution of adult male oral tract shapes for close and open vowels*. Proc. 2007 GECCO conference on Genetic and evolutionary computation, London UK.

Cooper, C., Murphy, D., Howard, D. and Tyrrell, A. (2006): *Singing Synthesis with an Evolved Physical Model*, IEEE Transactions in Audio, Speech and Language Processing, July 2006.

Cooper, Howard, Tyrrell (2005): *Bio-inspired Evolution of Oral Tract Shapes*. "A Stint on Voice Research", 17<sup>th</sup> Feb 2005, National Centre for Early Music, York.

Cooper, Howard, Tyrrell (2004): *Using GAs to Create a Waveguide Model of the Oral Vocal Tract*. Applications of Evolutionary Computing, Proceedings of EvoWorkshops2004, Portugal.