

# Thomas BANGERT

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## Personal Profile

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- Experienced researcher with some experience as a university lecturer. Taught at MSc and undergraduate level. Responsibility for developing own course units and supervising MSc projects.
- Published author of scientific research, both as part of PhD studies and as an independent researcher. Worked on a variety of EU funded research projects and was the technical lead on an EU funded project to develop viable electrochromic colour displays.
- Developed a novel colour model and investigated colour vision with monochromatic light using custom designed equipment. Worked in lab that carried out perceptual quality testing for next generation HEVC video coding for HDR displays.
- Worked as an independent researcher developing a system that mimics natural evolution in generating working assembly code.

My research aim in general terms is to understand how networks of natural neurons do the things they do, and applying that understanding to make computers do similar things. Additional interest in computer and network technology.

Areas of expertise:

**colour theory, network protocols, visual perception, neural modelling and evolutionary computing**

## Key Skills

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**Research:** Carried out research as part of MSc and PhD studies. Designed and built a multi-primary colour display and an experimental apparatus to produce monochromatic light stimuli.

**Teaching:** Taught programming and network engineering course units at undergraduate and MSc level. Supervised MSc student projects.

**Technical knowledge:** C, C++, assembly, BSD UNIX, TCP/IP protocol stack, Win 32 API and network server administration.

## Employment

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### **Research Assistant and Technical Lead on European Funded Research Project Queen Mary University of London**

September 2012 – 2017

Part-time employment as part of PhD carrying out a variety of research-related tasks, mostly related to EU funded research projects.

### **Lecturer**

#### **London South Bank University**

January 1999 – November 2001 , London, United Kingdom

Worked part-time as part of a PhD revitalizing the teaching of network technology; the practical elements of the principles of computer networking and network protocols. I taught some of the course units at undergraduate and MSc level.

### **Voluntary work**

#### **Independent Custody Visitors**

January 1998 – August 2003 , London, United Kingdom

Voluntary work as a police custody visitor. (1998 - 2003)

### **English Tutor**

#### **Sony of Japan**

January 1995 – December 1995 , Tokyo, Japan

Teaching English as a foreign language for Sony in Tokyo, Japan.

### **Programmer**

#### **Real-Time Data**

June 1988 – August 1989 , Toronto, Ontario

Worked as part of a team developing and maintaining software packages (using a C like language) for large insurance companies.

## **Programmer/Analyst**

### **Toronto**

January 1986 – January 1987 , Toronto, Ontario

Programmer/Analyst with Travelers Insurance (now Zurich Insurance). [ Summer Position ]

Programmer/Analyst for the Nuclear Fuels Division of Ontario Hydro (Toronto, Canada).

[ Summer Position ]

## **Programmer/Analyst and Systems Instructor**

### **Transport Canada, Fredericton Airport**

January 1984 – August 1984 , Fredericton, New Brunswick

Programmer/Analyst and Systems Instructor with Transport Canada (Fredericton Airport).

Developed software to track aircraft landings using dBase.

## **Education**

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### **Queen Mary University London**

**MSc by Research & PhD** (both on colour theory)

Sep 2010 – Sept 2019

### **London South Bank University**

**MSc & PhD in Network Engineering** (incomplete)

Sep 1998 – Nov 2001, London (UK)

### **University of Toronto**

**BSc Computing**

Sep 1985 – Jun 1988, Toronto

Artificial Intelligence with minor in Philosophy

### **Acadia University**

**BSc Computing** (incomplete, transferred to U of T), September 1983 – January 1985, Toronto

## **Publications**

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**Source Routing over the Wide Area Network** Aug 2000

Paper on novel Internet protocol designed to deal with network congestion. Part of PhD work.

**TriangleVision: a toy visual system, Proc. ICANN** Sep 2008

Paper on a novel artificial visual system.

**Defining the Neural Code, NIPS** Dec 2016

Paper on a neural computation.

I have also submitted a number of papers for publication on the following subjects: (1) my proposed network protocol (which formed the basis of my PhD work) and (2) a learning system by the autonomous evolution of assembly code. Both are long term projects that involve a significant amount of software development and may lead to publications in the future.

## **Languages & Citizenship**

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I have citizenship of the European Union (Germany), and residency rights in the UK (settled status). I also have Canadian citizenship, as I was born and raised in New Brunswick and Nova Scotia, and went to university in Toronto. My primary language is English.

German: professional working proficiency

French: limited working proficiency

Italian: elementary proficiency

## **Additional Skills & Expertise**

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Theory: Colour Theory, Computability & Complexity, Evolutionary Systems, Neural Systems and Artificial Life.

Practical Expertise: Understanding of UNIX BSD TCP/IP implementation. Good knowledge of the Win 32 API.

Skills: Programming in C, C++. Low level programming in assembly. Able to build a custom Unix BSD kernel.

In addition to professional experience I have also taken time off to travel widely, to refurbish my home and dedicate time to my family. One of the key skills which I have developed by having had a diverse range of experience is solving problems that are inherently simple but where solutions are obstructed by social convention or unhelpful paradigms. Color is one example of this kind of problem.