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Reader in Communications Engineering

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About

Costas Constantinou is Reader in Communications Engineering in the School of Electronic, Electrical & Computer Engineering.

Costas has published 100 research papers in scientific journals, international conferences and book chapters in a broad range of topics in the area of communications engineering that include optics, electromagnetic theory, electromagnetic scattering and diffraction, electromagnetic measurement, radiowave propagation modelling, mobile radio and future communications networks architectures. He also contributed to two patent applications on highly resilient routing protocols in computer networks.

He has received major grants from the Engineering and Physical Sciences Research Council (EPSRC), industry and government totalling well over £2.7m (1989–2010).

Qualifications

• Chartered Physicist, 1995
• Chartered Engineer, 1995
• PhD in Electronic and Electrical Engineering, University of Birmingham 1991
• BEng (Hons) in Electronic and Communication Engineering, University of Birmingham 1987

Biography

Costas came to Birmingham University from Cyprus to Study Electronic and Electrical Engineering in 1984 on a Commonwealth Scholarship. After graduating with a first class honours BEng in 1987 he went on to study for a PhD in the area of Integrated Optics. Halfway through his PhD studies in 1989 he joined the faculty of the then Department of Electronic and Electrical Engineering as a Lecturer.

He was awarded his PhD in Electronic and Electrical Engineering on interdisciplinary work in modelling integrated optical waveguides by adapting techniques of mathematical physics in 1991. His entire research career has since been characterised by working on the interface between physics, mathematics and communications engineering on topics that are not naturally aligned (e.g. Complexity Science, Theoretical Physics and Computer Networking).

In 2005 he cofounded and became a director of a spin-off company, Prolego Technologies Ltd., until 2009.

Teaching

Teaching Programmes
• MEng3 EE3GP Group Project
• MEng4/MSc Computer Communication Networks
• MEng4/MSc Satellite and Cellular Radio
• MSc Introductory Module for Communications

Postgraduate supervision

PHD RESEARCH OPPORTUNITIES

I am always happy to consider inquiries and applications from prospective PhD students interested in a topics ranging from fundamental electromagnetics and radio to networks.

Prospective applicants prior to approaching Costas need to prepare a *short* statement of proposed research, no more two sides of A4 (in addition to the usual personal statement and CV) indicating the following:

• Show a reasonable understanding of existing work in the field (what is the state of the art?)
• Identify an area for new work (what is worth pursuing?)
• Have concrete goals and deliverables for the first year (how do intend to start this and how can I help as a supervisor?)
• Indicate that you know how to achieve them (what are your specific skills and experiences that make you a suitable person to study for a PhD)

CURRENT PHD PROJECTS

• Debra Topham: Investigation into the Use of Ad Hoc Networks in Intelligent Transportation Systems
• Paul Kiddie: Distributed Soft-Security in Mobile Ad-Hoc Networks using Bio-inspired Algorithms and Game Theory
• Amalia Tsanaka: Joint Topology Control and Routing in Mobile Ad-Hoc Networks
• Hani Mortazavi Najafabadi: Game Theoretic Wireless MAC
• Jessica Shahper: Switching nodes using network coding

PAST PHD PROJECTS

- P.G. Brown (1994) Deterministic Modelling of Radiowave Propagation in Urban Microcellular Environments using Ray Methods
- L.C. Ong (1996) Radiowave Propagation in Urban Environments
- C.A. Zelley (1996) Radiowave Propagation Over Irregular Terrain using the Parabolic Equation Method
- M.I. Sheikh (1997) Ray-Optics Based Propagation Tools for Future Wireless Communication Networks
- C. Demetrescu (1997) Elements of Diffraction Theory for Urban Radiowave Propagation Modelling
- R. Hill (2000) Local Mean Signal Strength Prediction in Urban Environments
- M.J. Mughal (2001) Semi-deterministic Wideband Propagation Modelling for Urban Environments
- B. Liu (2004) State-sharing Mechanisms that Support Adaptive Routing in Distributed Networks
- Y. I. Nechayev (2004) Investigations into Propagation Mechanisms for Urban Radiowave Propagation Modelling
- H.M. Lim (2005) On the Average Capacity of MIMO Channels in Outdoor Multipath Urban Environments
- D.S.L. Dolcy (2005) Predictive Network Resource Allocation and QoS Provisioning
- M.H.U. Cassia (2008) Game Theoretic Approach to Medium Access Control Protocol (MAC) in IP Networks
- K. Rose (2009) Large Scale Location Management
- P.D. Arjona Villicaña (2010) Chain Routing: A Novel Routing Framework for Increasing Resilience and Stability in the Internet

Research

RESEARCH THEMES

- Radiowave Propagation
- Applied Electromagnetics
- Wireless Networking
- Computer Networks

Other activities

- Secretary of UK Panel for URSI

Publications

RECENT JOURNAL AND BOOK PUBLICATIONS

Gallo M., Hall P. S., Bai Q., Nechayev Y. I., Constantinou C. C. and Bozzetti M. (2011), Simulation and Measurement of Dynamic On-Body Communication Channels, IEEE Transactions on Antennas and Propagation, 59:623-630

Liu Z., Kwiatkowska M. and Constantinou C. C. (2010), A biologically inspired QoS routing algorithm for mobile ad hoc networks, International Journal of Wireless and Mobile Computing, 4: 64-75

Arjona-Villicaña P. D., Constantinou C. C. and Stepanenko A. S. (2010), The Internet's Unexploited Path Diversity, IEEE Communications Letters, 14:474-476

Khan A., Constantinou C. C. and Stojmenovic I. (2010), "Modelling for Geo-Routing in Multi-Hop Wireless Networks" In Gavrilovska L., Krco S., Milutinovic V., Stojmenovic I. and Trobec R. (eds.) Application and Multidisciplinary Aspects of Wireless Sensor Networks: Concepts, Integration, and Case Studies, Berlin: Springer, pp.145-170

Stepanenko A. S., Constantinou C. C., Yurkevich I. V. and Lerner I. V. (2008), Temporal Correlations of Local Network Losses, Physical Review E, 77:046115

Constantinou C. C., Stepanenko A. S., Arvanitis T. N., Baughan K. J. and Liu B. (2008), "Resilient Recursive Routing in Communication Networks" In Nayak A. and Stojmenovic I. (eds.) Handbook of Applied Algorithms: Solving Scientific, Engineering, and Practical Problems, New York: Wiley, pp. 485-508

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