



Curriculum Vitae

Pavlos Ch. Antoniou, Ph.D.

Personal Information

Date of Birth: December 20, 1980

Place of Birth: Nicosia, Cyprus

Nationality: Greek-Cypriot

Contact Information

Address

Work

Department of Computer Science,
Pure and Applied Sciences (FST-01)
University of Cyprus
1 University Avenue
2109, Aglantzia, Nicosia, Cyprus.
Tel.: +357-22-893927
Fax: +357-22-892701
Office: FST 01 B109

Home

87 Akadimias Street,
2321, Lakatamia,
Nicosia, Cyprus.

Email Address(es)

paul.antoniou@cs.ucy.ac.cy
paul.antoniou@gmail.com

Personal Website

<https://www.cs.ucy.ac.cy/~csp5pa1>

Education

- 2005 – 2012 : Ph.D., Nature-Inspired Congestion Control and Avoidance in Wireless Sensor Networks
Networks Research Laboratory,
Computer Science Department, University of Cyprus
Supervising Professor: Dr. Andreas Pitsillides
- 2000 – 2005 : Dipl.-Ing., National Technical University of Athens (NTUA), Athens, Greece
School of Electrical and Computer Engineering (M.Sc. Degree equivalent)*
GPA: 9.18 out of 10, Rank: Top 3%
Supervising Professor: Dr. Iakovos Venieris
Major Area: Communications

Theses Titles:

1. Implementation of the Session Initiation Protocol (SIP) in Network Simulator and comparison with Mobile IP for Beyond 3G Mobile Networks using Network Simulator.

2. Design, software implementation and performance evaluation of a SIP based RASN node in Beyond 3G Mobile Networks.

* The Dipl. –Ing. obtained by the NTUA was recognized by the Cyprus Council for the Recognition of Higher Education Qualifications (KY.S.A.T.S.) to be equivalent to the Masters Degree according to the Regulation 172/99.

Research Experience

- 12/2008 – 06/2009: Research Associate, Networks Research Laboratory, Computer Science Department, University of Cyprus.
Project: Mimicking Nature for Designing Robust Congestion Control Mechanisms in Self-Organized Autonomous Decentralized Networks ([MiND2C](#)), funded by the Cyprus Research Promotion Foundation, under the Grant Agreement No. TPE/EPIKOI/0308(BE)/03.
- 09/2008 – 06/2009: Research Associate, Networks Research Laboratory, Computer Science Department, University of Cyprus.
Project: Performance Control in Wireless Sensor Networks ([GINSENG](#)), funded by the 7th Framework Programme (FP7-ICT-2007-2), under the Grant Agreement No. 224282.
- 09/2005 – 10/2006: Research Associate, Networks Research Laboratory, Computer Science Department, University of Cyprus.
Project: Adaptive Methods for the Transmission of Video Streams in Wireless Networks ([ADAVIDEO](#)), funded by the University of Cyprus.

Teaching Experience

- 07/ 2009 – Present: Special Teaching Staff, Computer Science Department, University of Cyprus (*)
- Spring Semester 2009: Teaching Assistant for the undergraduate course EPL375, Advanced Networks, Computer Science Department, University of Cyprus.
- Spring Semester 2009: Teaching Assistant for the postgraduate course EPL657, Wireless Networks, Computer Science Department, University of Cyprus.
- Spring Semester 2008: Teaching Assistant for the undergraduate course EPL420, High Speed Multimedia and Multiservice Networks, Computer Science Department, University of Cyprus.
- Fall Semester 2007: Teaching Assistant for the undergraduate course EPL324, Communications and Networks, Computer Science Department, University of Cyprus.

(*) Courses involved: Introduction to Programming and Problem Solving (using Python), Introduction to Programming for Engineers, Data Structures and Algorithms for Electrical and Computer Engineers, Programming Principles I (using Java), Programming Principles II (using C), Operating Systems, Data Mining in the Web, Search Engines and Information Retrieval (postgraduate), Systems Programming (in UNIX), Software Engineering, Communications and Networks, Advanced Networks, Networks and Information Security, Foundations of Web Technologies, Computer Networks and the Internet, Systems and Networks Security.

Research Interests

- Design (protocols, architectures, applications) and analysis (modelling, simulation and implementation) of Complex (Fixed/Mobile and Wired/Wireless) Communication Networks:
 - Mobile Ad-hoc Networks and Wireless Sensor Networks:
 - Internet (TCP/IP, Mobile IP)
 - Wireless Local/Personal Area Networks
 - Broadband Networks (xDSL)
 - Cellular (2G, 3G and B3G) Networks
- Concepts of complex control and biologically/nature inspired techniques including Computational Swarm Intelligence (e.g. Bird Flocking behavior) and Mathematical Models in Population Biology (e.g. Lotka-Volterra model), for combating congestion (overload) in Autonomous Decentralized Networks such as ad-hoc, and sensor networks resulting in robust, self-organized and self-adaptable networked systems.
- Non-linear/Adaptive/Fuzzy control theory and Analytical (mathematical) models for:
 - Congestion and Flow Control
 - QoS Provision
 - Video Streaming
- Machine Learning algorithms and tools for analysing the overall behaviour of complex systems, and focusing on energy-efficient environments.

Computer Skills

Programming Languages	C, C++, Java, Pascal, Fortran.
Scripting Languages	PHP, Javascript, Python, TCL/TK, JSP, ASP, AWK Script.
Web Technologies	HTML, CSS, JQuery, JSON, XML, REST.
Database Languages	MySQL, NoSQL Databases (MongoDB).
Internet Protocols	TCP, UDP, RTP/RTCP, RTSP, SIP, RSVP, DNS, SNMP, HTTP, SMTP, POP3, FTP, OSPF, BGP, ICMP, ARP, IEEE 802.3 (Ethernet), IEEE 802.11 (WiFi).
Tools	Network Simulator 2 (ns2), MATLAB, various UNIX tools.

Honours and Awards

- 2000 – 2005: Ranked within top 3% graduate students, of the School of Electrical and Computer Engineering, National Technical University of Athens.
- 2002 – 2003: Scholarship from the Greek Foundation of National Scholarships (IKY) for achieving the 4th highest GPA in the School of Electrical and Computer Engineering of the National Technical University of Athens, during 5th and 6th semester.
- 1995 – 1998: Special award for academic excellence each year during three years in Kykkos A' Lyceum.

Memberships

2008 – present: Cyprus Computer Society

Languages

Greek (native)
English (fluent)

Publications

Book Chapters

- [1] **Pavlos Antoniou**, and Andreas Pitsillides, "Congestion Control in Wireless Sensor Networks based on the Lotka Volterra Competition Model", *Biologically Inspired Networking and Sensing: Algorithms and Architectures*, edited by Dinesh C. Verma and Pietro Lio, IGI Book, pp. 158-181, 2011.

Journals

- [1] Charalambos Sergiou, **Pavlos Antoniou**, and Vasos Vassiliou, "A Comprehensive Survey of Congestion Control Protocols in Wireless Sensor Networks", *IEEE Communications Surveys & Tutorials*, Vol. 16, Issue 4, pp. 1839-1859, December 2014.
- [2] **Pavlos Antoniou**, Andreas Pitsillides, Tim Blackwell, Andries Engelbrecht, and Loizos Michael, "Congestion control in wireless sensor networks based on bird flocking behavior," *Elsevier Computer Networks Journal*, Vol. 57, No. 5, pp. 1167-1191, April 2013.
- [3] **Pavlos Antoniou** and Andreas Pitsillides, "A Bio-Inspired Approach for Streaming Applications in Wireless Sensor Networks based on the Lotka-Volterra Competition Model", *Elsevier Computer Communications, Special Issue on Applied Sciences in Communication Technologies*, Vol. 33, Issue 17, November 15, 2010, pp. 2039-2047.

Conference Papers

- [1] **Pavlos Antoniou**, Andreas Pitsillides, Andries Engelbrecht and Tim Blackwell, "Applying Swarm Intelligence to a Novel Congestion Control Approach for Wireless Sensor Networks", Invited paper, 4th International Symposium on Applied Sciences in Biomedical and Communication Technologies (ISABEL 2011), Barcelona, Spain, October 26-29, 2011.
- [2] **Pavlos Antoniou**, Andreas Pitsillides, Andries Engelbrecht and Tim Blackwell, "Mimicking the Bird Flocking Behavior for Controlling Congestion in Sensor Networks", Invited Paper, 3rd International Symposium on Applied Sciences in Biomedical and Communication Technologies (ISABEL 2010), Rome, Italy, November 7-10, 2010.
- [3] **Pavlos Antoniou**, and Andreas Pitsillides, "Congestion Control in Autonomous Decentralized Networks based on the Lotka-Volterra Competition Model", 19th International Conference on Artificial Neural Networks (ICANN 2009), LNCS 5769, Limassol, Cyprus, September 14-17, 2009, pp. 986-996.
- [4] **Pavlos Antoniou**, Andreas Pitsillides, Tim Blackwell and Andries Engelbrecht, "Employing the Flocking Behavior of Birds for Controlling Congestion in Autonomous Decentralized Networks", 2009 IEEE Congress on Evolutionary Computation (IEEE CEC 2009), May 18-21, Trondheim, Norway.
- [5] **Pavlos Antoniou**, Vasos Vassiliou and Andreas Pitsillides, "ADIVIS: A Novel Adaptive Algorithm for Video Streaming over the Internet," 18th IEEE Annual International Symposium on Personal Indoor and Mobile Radio Communications (PIMRC 2007), Athens, Greece, September 3-6, 2007.
- [6] **Pavlos Antoniou**, Andreas Pitsillides and Vasos Vassiliou, "Adaptive Feedback Algorithm for Internet Video Streaming based on Fuzzy Rate Control," 12th IEEE Symposium on Computers and Communications (ISCC'07), Aveiro, Portugal, July 1-4, 2007, pp. 219-226.
- [7] Vasos Vassiliou, **Pavlos Antoniou**, Iraklis Giannakou, and Andreas Pitsillides, "Requirements for the Transmission of Streaming Video in Mobile Wireless Networks", International Conference on Artificial Neural Networks (ICANN 2006), Athens, Greece, September 10-14, 2006, pp. 528-537.

Workshop Papers

- [1] **Pavlos Antoniou**, Andreas Pitsillides, Andries Engelbrecht, Tim Blackwell and Loizos Michael, "Congestion Control in Wireless Sensor Networks based on the Bird Flocking Behavior", IFIP 4th International Workshop on Self-Organizing Systems (IWSOS 2009), Zurich, Switzerland, December 9-11, 2009, pp. 200-205.
- [2] **Pavlos Antoniou**, Vasos Vassiliou and Andreas Pitsillides, "Delivering Adaptive Scalable Video over the Wireless Internet," 1st ERCIM Workshop on eMobility (in conjunction with WWIC2007), Coimbra, Portugal, May 21, 2007, pp. 23-34.

Poster Presentations

- [1] **Pavlos Antoniou** and Andreas Pitsillides, "Wireless Sensor Network Control: Drawing Inspiration from Complex Systems," Tutorial and Ph.D. Student Workshop (in conjunction with MedHocNet2007), Corfu, Greece, June 12-13, 2007.

Technical Reports

- [1] **Pavlos Antoniou**, and Andreas Pitsillides "From Bird Flocks to Wireless Sensor Networks: A Congestion Control Approach," Technical Report TR-11-05, Department of Computer Science, University of Cyprus, September, 2011.
- [2] **Pavlos Antoniou**, and Andreas Pitsillides "Understanding Complex Systems: A Communication Networks Perspective," Technical Report TR-07-01, Department of Computer Science, University of Cyprus, February, 2007.

Seminar and Symposium Papers

- [1] **Pavlos Antoniou**, and Andreas Pitsillides "Towards a Scalable and Self-adaptable Congestion Control Approach for Autonomous Decentralized Networks," 3rd European Symposium on Nature-inspired Smart Information Systems, St. Julians, Malta, November 26-27, 2007.
- [2] **Pavlos Antoniou**, and Andreas Pitsillides "Resilient and Survivable Networks, Infrastructures and Services," Schloss Dagstuhl, Wadern, Germany, Seminar 07301, July 22-25, 2007.