Ioannis Papapanagiotou

Assistant Professor, Computer and Information Technology
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Purdue University, West Lafayette, Indiana 47907
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EDUCATION

Ph.D. in Computer Engineering and Operations Research (Dual Major), Aug. 2012
North Carolina State University, Raleigh, NC
Dissertation title: *"Design and Optimization of Mobile Aggregation Architectures"*
Advisors: Michael Devetsikiotis (ECE) and Harry Perros (OR/CS)

M.Sc. in Electrical and Computer Engineering, Dec. 2010
North Carolina State University, Raleigh NC

Diploma in Electrical and Computer Engineering (5-year studies), Dec. 2006
University of Patras, Rion, Greece
Diploma thesis title: *"Analysis and Simulation of Quality of Service in WLANs"*
Advisor: Stavros Kotsopoulos

AFFILIATION

Adjunct Assistant Professor, 2014 - present
Electrical & Computer Engineering, North Carolina State University, Raleigh NC

Faculty 2014 - present
Center for Education and Research in Information Assurance and Security (CERIAS)
Energy Center (Smart Grid Research and Advanced Ground Vehicle Power groups)
Purdue University, West Lafayette IN

EMPLOYMENT

Assistant Professor, 2013 - present
Computer & Information Technology, Purdue University, West Lafayette, IN

Advisory Software Engineer, 2012 - 2013
IBM Emerging Technology Institute, Durham NC

Visiting Researcher & Intern, 2010 - 2012
IBM Research, Durham NC

Graduate Research Assistant, 2008 - 2010
Network Performance Research Group, North Carolina State University, Raleigh NC

Consultant Engineer, Summer 2009
Technical Chamber of Greece, Athens Greece

Graduate Teaching Assistant, 2007 - 2009
North Carolina State University, Raleigh NC

Visiting Researcher, Summer 2007
VTT Research Center, Espoo Finland

Research Assistant, 2006 - 2007
Wireless Telecommunications Laboratory, University of Patras, Greece

HONORS & AWARDS

Grants & Funding

- NetApp Faculty Fellowship 2015
- Google Geo Education Award 2014
- Amazon AWS Education Grant
- NVIDIA Tesla K40 GPU and Jetson TK1 SoC hardware donation
- Google Maps Engine Grant
- "Service Level Agreements in Cloud Deployments", OVPR Purdue University
- (pending federal grant proposal effort > $1M)

Awards

- Established NVIDIA CUDA Research Center at Purdue University, 2014-2015
- Distinguished Scientist, Hellenic Army 2014
- IBM First Patent Award 2012
- Best Paper Award IEEE CAMAD 2010
- Best Paper Award IEEE GLOBECOM 2007
- NSF Travel Grant Awards (x2) IEEE GLOBECOM 2007 & 2010
- Outstanding Teacher's Assistant Awards (x2) 2008 & 2009
- Mentor Teaching Assistantship Award 2009-2010

Scholarships

- IBM PhD Fellowship 2011-2012
- Andreas Metzelopoulos PhD Scholarship (top 4 alumni of the Univ. of Patras in the US) 2009-2011
- Academy of Athens PhD Fellowship (top 2 students from Greece in the US) 2007-2011

TEACHING EXPERIENCE

Darmstadt University of Applied Sciences, Germany
Study Abroad Program Leader and Instructor of Cloud Computing (Designed new program)

Purdue University, USA
CNIT 581-CLD Cloud Computing (Instructor - Spring 2015)
CNIT 240 Data Communications and Networks (Instructor - Spring)
CNIT 581-CLD Cloud Computing (Designed new course/Instructor - Fall 2014 - Evaluation 4.9/5.0)
CNIT 561 Advanced Parallel Data Systems (Instructor - Spring 2014 - Evaluation 5.0/5.0)
CNIT 581-CIT Graduate Seminar (Organizer - Spring & Fall 2014 - Evaluation 4.7/5.0 and 4.6/5.0)
CNIT 240 Data Communications and Networks (Instructor - Fall 2013 - Evaluation 4.8/5.0)

UNC Asheville and NC State University, USA
ECE 220 Principles of Electrical & Computer Engineering (MATLAB Instructor - Spring 2009 & 2010)

NC State University, USA
ECE/CSC 576 Connection Oriented Networks (TA - Fall 2008 & 2010 - Graduate)
ECE/CSC 776 Design & Performance Evaluation of Network Systems (TA - Spring 2008 - Graduate)
ECE 302L Microelectronics Lab (Lab Instructor - Fall 2007)

Hellenic Telecommunications Organization S.A., Greece
Mini-course on Site Survey and Installation of Indoor/Outdoor Wireless Networks (Spring 2007)

PROFESSIONAL MEMBERSHIP

Association for Computing Machinery (ACM)
Institute of Electrical and Electronics Engineers (IEEE)
International Society of Service Innovation Professionals (ISSIP)
Institute for Operations Research and the Management Sciences (INFORMS)
Licensed Professional Engineer - Technical Chamber of Greece

SERVICE

Professional Service

- Technical Program Chair, IEEE Software Defined Radio Access Networks (SDRAN) workshop in IEEE ICC 2015
- NSF Review Panelist for Networking Technology and Systems (NeTS)
- IEEE Mentor 2014
- IEEE Communication Systems Integrations and Modeling (CSIM) technical committee
- Technical Program Chair, IEEE CAMAD 2011
- Publication Chair, IEEE CAMAD 2012
- President, ECE NCSU Graduate Student Association, 2011-12

Technical Program Committees

- IEEE GlobalSIP 2014
- IEEE CloudCom 2014
- IEEE ICC 2010-2014
- IEEE GLOBECOM 2009-2014
- ICCCN 2011-2012
- IEEE ICNC 2015
- IEEE SmartGridComm 2010-2011
- IEEE Broadband Wireless Access Workshop series 2008-2010

Reviewer in Journals
IEEE Transactions on {Parallel and Distributed Systems, Wireless Communications, Communications}, IEEE Wireless Communications Magazine, IEEE Communications Surveys and Tutorials, IEEE Communications Letters, ACM Transactions on Modeling and Computer Simulation, Springer Mobile Networks and Applications, Elsevier Computer Communications, EURASIP Journal on Wireless Communications and Networking, Concurrency and Computation: Practice and Experience.

SKILLS

Software Development
Languages: C/C++, Java, Javascript (Node.js), Python, Linux Shell
Source Code Management: SVN, CVS, RTC, Git
Network Programming: Network server development (threaded IO/NIO), Packet Analysis (Libpcap)
Intrusion Detection: NIDS (Libnids) and Bro IDS
Databases/Caching: MongoDB, BerkeleyDB, MySQL, DB2, WebSphere eXtreme Scale
Parallel Computing: NVIDIA CUDA

Scientific Tools
Math: MATLAB, Mathematica, CPLEX
Network Simulations: OPNET Modeler, Network Simulator (NS), Dynamips (Cisco IOS emulator)

Working Knowledge and Interest in the U.S. Patent System

PUBLICATIONS

Journals

1. F. Zafari, I. Papapanagiotou, "Micro-location for Internet of Things equipped Smart Buildings", IEEE Journal on Internet of Things (under review)

2. I.S. Bayram, I. Papapanagiotou, "A Survey on Communication Technologies and Requirements for Internet of Electric Vehicles", EURASIP Journal on Wireless Communications and Networking, Dec. 2014

3. I. Papapanagiotou, M. Falkner, M. Devetsikiotis, "Optimal Functionality Placement for Multiplay Service Provider Architectures", IEEE Transactions on Networks and Service Management, Sep. 2012.

4. I. Papapanagiotou, F. Granelli, D. Kliazovich, M. Devetsikiotis, "A Metamodeling Approach for Cross-Layer Optimization: A Framework and Application to Voice over WiFi", Elsevier Simulation Modeling Practice and Theory, 2011.

5. I. Papapanagiotou, D. Toumpakaris, J. Lee, M. Devetsikiotis, "A Survey on Mobile WiMAX Networks: Objectives, projected features and technical challenges", IEEE Communications Tutorials & Surveys, 2009, **IEEE ComSoc Top 10 articles Dec 2009 - April 2010**.

6. I. Papapanagiotou, G.S. Paschos, M. Devetisikiotis, "A Comparison Performance Analysis of QoS WLANs: Approaches with Enhanced Features", Advances in Multimedia Journal, Hindawi Publications. Volume 2007, Article ID 23817.

7. G. S. Paschos, I. Papapanagiotou, S. A. Kotsopoulos, G. Karagiannidis, "A new MAC protocol with pseudo-TDMA behavior for supporting QoS in 802.11 WLANs", EURASIP Journal on Wireless Communications and Networking, Volume 2006, Article ID 65836.

Conferences

1. Z. Yao, I. Papapanagiotou, R.D. Callaway, "Multi-dimensional Scheduling in Cloud Storage Systems", IEEE ICC 2015, London UK.

2. Z. Yao, I. Papapanagiotou, R.D. Callaway, "SLA-aware Resource Scheduling for Cloud Storage" IEEE CLOUDNET 2014, Luxembourg City, Luxembourg.

3. I. S. Bayram, G. Michailidis, I. Papapanagiotou, M. Devetsikiotis, "Decentralized Control of Electric Vehicles in a Network of Fast Charging Stations", IEEE GLOBECOM 2013, Atlanta GA.

4. I. Papapanagiotou, E. Nahum, V. Pappas, "Configuring DHCP Leases in the Smartphone Era", ACM IMC 2012, Boston MA.

5. I. Papapanagiotou, E. Nahum, V. Pappas, "Smartphones vs. Laptops: Comparing Web Browsing Behavior and the Implications for Caching", ACM SIGMETRICS 2012, London, UK.

6. I. Papapanagiotou, R.D. Callaway, M. Devetsikiotis, "Chunk and Object Level Deduplication for Web Optimization: A Hybrid Approach", IEEE ICC 2012, Ottawa Canada.

7. A.M. Gossett, I. Papapanagiotou, M. Devetsikiotis, "An Apparatus for P2P Classification in Netflow Traces", IEEE GLOBECOM 2010 Workshop on Enabling the Future Service-Oriented Internet (EF-SOI 2010). **NSF STG Award**

8. U.K. Chaudhary, I. Papapanagiotou, M. Devetsikioitis, "Flow Classification Using Clustering and Association Rule Mining", IEEE CAMAD 2010, Miami FL, USA. **Best Paper Award**

9. I. Papapanagiotou, M. Devetsikiotis, "Aggregation Design Methodologies for Triple Play Services" IEEE CCNC 2010, Las Vegas NV, USA.

10. I. Papapanagiotou, G.S. Paschos, S.A. Kotsopoulos, M. Devetsikiotis, "Extensions and Comparison of QoS-Enabled WiFi Models in the Presence of Errors", IEEE GLOBECOM 2007, Washington DC, USA. **Best Paper Award / NSF STG Award**

11. I. Papapanagiotou, J.S. Vardakas, G.S. Paschos, M.D. Logothetis, S.A. Kotsopoulos, "Performance Evaluation of IEEE 802.11e based on ON-OFF Traffic Model", ACM MOBIMEDIA 2007, Nafpaktos, Greece.

12. J. S. Vardakas, I. Papapanagiotou, M. D. Logothetis, S.A. Kotsopoulos, "On the End-to-End Delay Analysis of the IEEE 802.11 Distributed Coordination Function", IEEE Computer Society, 2nd ICIMP 2007, Silicon Valley, USA.

13. G. S. Paschos, I. Papapanagiotou, C. G Argyropoulos, S. A. Kotsopoulos, "A Heuristic Strategy for 802.16 WiMAX scheduler for Quality of Service", 45th Congress FITCE 2006, Athens, Greece.

14. G. S. Paschos, I. Papapanagiotou, E. D. Vagenas, S. A. Kotsopoulos, "Performance analysis of a new Admission Control for 802.11 WLAN Networks in ad hoc mode", CSNDSP 2006, Patras, Greece.

Patents

1. I. Papapanagiotou, E. Nahum, V. Pappas, "Differential Dynamic Host Configuration Protocol Lease Allocation" (Issued May 1, 2014 - App. Number: 20140122386).

2. I. Papapanagiotou, E. Nahum, V. Pappas, "Differential dynamic host configuration protocol lease allocation that classifies the client/operating system" (issued Sep 9, 2014 - App. Number 8832007)

3. I. Papapanagiotou, R.D. Callaway, "Dynamic Caching Module Selection for Optimized Data Deduplication" (issued: Sep 18, 2014 - App. number 20140281258 and 20140281262)

4. I. Papapanagiotou, R.D. Callaway, "Scheduler Training for Multi-Module Byte Caching" (issued: Dec. 18, 2014 - App. number 20140372708).

Book Chapters

1. R. Ghosh, I. Papapanagiotou, K. Boloor, "A Survey on Research Initiatives for Healthcare Clouds" In Cloud Computing Applications for Quality Health Care Delivery, 1-18 (2014)

2. G.S. Paschos, I. Papapanagiotou, T.M. Bohnert, "Power Saving Mechanisms in IEEE 802.16e Wireless Networks", in "WiMAX Networks Planning and Optimization", Auerbach Publications, CRC Press, April 2009.

3. I. Papapanagiotou, J. Hui, M. Devetsikiotis, "On the Pricing of WiMAX networks", in "WiMAX Evolution: Emerging Technologies and Applications", John Wiley & Sons Publications, March 2009.

4. I. Papapanagiotou, G.S. Paschos, "A case study on the Energy Consumption and Mobility of the WLANs and WMANs", in "Heterogeneous Next Generation Networks, Innovations and platforms", IDEA Group Publishing, October 2008.

Technical Articles

1. I. Papapanagiotou, M. Behnen and JP Parkin, "DB2 NoSQL for JSON Capabilities, Part 4: Using the IBM NoSQL Wire Listener for DB2, IBM developerWorks article, June 2013.

Education and General Interest Articles

1. C. Abshire, D. Gusev, I. Papapanagiotou, S. Stafeyev, "A mathematical method for visualizing Ptolemy's India in modern GIS tools"10th Jubilee ICA Conference+Workshop Digital Approaches to Cartographic Heritage "Digital Approaches to Cartographic Heritage", Corfu 2015 (under review)

2. I. Papapanagiotou, N.Duval-Couetil, "Demystifying the Patent Process: Intellectual Property Labs in Engineering and Technology", American Society for Engineering Education Annual Conference, Seattle, WA 2015

3. I. Papapanagiotou, J. V. Devide, M. Devetsikiotis, M. Montoya-Weiss, "Networked 3D Virtual Computing for Collaborative Environments in Science and Education: Towards VCL 3.0", 2nd International Conference on the Virtual Computing Initiative (ICVCI 2), 15-16 May 2008, Research Triangle Park NC, USA

Citations (Google Scholar): 206

INVITED TALKS

- "Resource Allocation in Cloud Storage", INFORMS Annual Meeting 2014 , San Francisco CA, Nov. 2014

- "Cloud Computing", TECSUP Instituto Technologico Privado Peru, West Lafayette IN, Oct. 2014

- "SLA-aware resource scheduling in Cloud Storage", Netapp, RTP NC, Aug. 2014.

- "Data Deduplication in Mobile Networks", Qualcomm Research, San Diego CA, Apr, 2012.

- "Data Redundancy Elimination in Wireless Networks", ECE NCSU Seminar, Raleigh NC, Jan 2012.

- "Byte Caching in Wireless Networks", IBM TJ Watson Research Center, Hawthorne NY, Dec. 2011.

- "Aggregation Design Methodologies for Multiplay Architectures", CISCO Webex Seminar, Ottawa Canada, May 2010.

- "Networked 3D Virtual Computing for Collaborative Environments in Science and Education: Towards VCL 3.0", 2nd Int Conference on the Virtual Computing Initiative (ICVCI 2), pp. 68-75, RTP NC USA, 2009.

- "Modeling Broadband Aggregation Architecture for Emerging and Future Traffic Patterns", Hot topic presentation on the 2nd IEEE Workshop on Enabling the Future Oriented Internet, co-located with IEEE GLOBECOM 2008, New Orleans LA, 2008.

TRAINING WORKSHOPS

- Faculty Search Committee Workshop, Purdue ADVANCE Center for Faculty Success, Nov. 2014
- Parallel Programming and Optimization with Intel Xeon Phi co-processors, Colfax Developer Boot Camp, Purdue University, Sep, 2014
- Heidelberg Laureate Forum - Abel, Fields and Turing Laureates Meet the Next Generation (selected among 200 young scientists worldwide), Heidelberg Germany, Sep, 2014
- Career Mentoring Workshop, NSF & Computing Research Association, Washington DC, Feb. 2014
- Graduate Faculty Workshop, Purdue Graduate School, Oct. 2013
- Faculty Teaching Workshop, Purdue Center for Instructional Excellence, Aug. 2013
- Patent Education and Training, IBM RTP Collaborative Inventors Workshop, Durham NC, Apr. 2013

MENTORING STUDENTS

Current committee chair at Purdue University
Zhihao Yao (PhD student)
Faheem Zafari (PhD student)
Raj Praveen Selvaraj (MSc CIT student - to be employed by Facebook)
Mengjie Wang (MSc CIT student)
Diao Kelu (MSc CIT student)
Ankush Singla (PhD student CERIAS/Information Systems)
Novjean Kannathara (MS CIT student)
Sahithya Kodam (MS CIT student)
Michael Webb Jr (MS Directed Project - employed by Rolls Royce)

Graduated from Purdue University
Damon Portch (Senior Project 2014 - Interactive Intelligence)
Mark Allen Cordell (Senior Project 2014 - Twitch/Amazon)

Graduated from North Carolina State University
Umang Chaundary (co-advised MSc thesis 2010 - SAS)
Andrew Gossett (MSc Independent Study 2010 - Cisco)
Selvaganapath Chidambaram (MSc Independent Study 2010 - Brocade)
Pulla Indira Radhika (MSc Independent Study 2009 - Brocade)
Sindhura Ramegowda (MSc Independent Study 2009 - Rivedbed)