

Asst. Prof. Xenofontas Dimitropoulos

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Education

- 8/2002–7/2006 **PhD**, *Electrical and Computer Engineering, Georgia Institute of Technology, Atlanta.*
GPA: 3.92/4,
Thesis title: “Measuring and Modeling Internet Routing for Realistic Simulations”
Advisor: George Riley
PhD Committee: KC Claffy, Nick Feamster, John Copeland, Henry Owen, Doug Blough
- 8/2001–7/2002 **MSc**, *Electrical and Computer Engineering, Georgia Institute of Technology, Atlanta.*
- 10/1997–6/2001 **BS**, *Physics, Aristotle University of Thessaloniki, Greece.*
GPA: 8.8/10 (highest graduation GPA)

Employment History

- 1/2014–present Assistant Professor
Computer Science Department, **University of Crete (UoC)**, Heraklion, Greece
Teaching two undergraduate and one post-graduate course with an average attendance of more than 150 students per year in total. Serving in a number of departmental and institutional committees.
- 1/2014–present Affiliated Researcher and Group Leader
Institute of Computer Science, **Foundation for Research and Technology – Hellas (FORTH)**, Heraklion, Greece
Leading the Internet Security Privacy, and Intelligence Research (INSPIRE) group in the Telecommunications and Networks Laboratory of FORTH. INSPIRE has more than 15 members, including post-docs, research engineers, PhD students, etc. and conducts cutting-edge research in the areas of Internet Measurements, Software-Defined Networks, Wireless Networks, and Internet Security and Privacy.
- 1/2014–12/2015 Academic Visitor
ETH Zürich, Zürich, Switzerland
Held a Visiting Professor position. Visited frequently ETH Zürich and maintained a very active collaboration.
- 11/2008–12/2013 Senior Researcher and Lecturer
ETH Zürich, Zürich, Switzerland
Supervised a group of PhD students doing research on network monitoring, software defined networking, privacy, and security topics. Coordinated funded projects and taught graduate courses.
- 10/2008–07/2011 Lecturer
Open University of Cyprus (OUC), Nicosia, Cyprus
Designed, coordinated, and taught new thematic union on Computer Networks for the graduate distance-learning curriculum of OUC. Supervised MSc theses.
- 9/2006–10/2008 Post-doctoral Researcher
IBM Research, Zürich, Switzerland
Conducted research on network traffic anomaly detection and on network economics. Contributed to the IBM Aurora project that designed a network traffic profiling system, which was transferred to IBM Tivoli.

- 5/2006–8/2006 Intern
IBM Research, Zürich, Switzerland
 Conducted research on streaming algorithms for network traffic analysis.
- 5/2005–5/2006 Research Assistant
Georgia Institute of Technology, Atlanta, USA
 Introduced novel techniques for generating synthetic annotated graphs that model real network topologies.
- 1/2005–5/2005 Intern
 Cooperative Association for Internet Data Analysis (**CAIDA**), University of California, San Diego (**UCSD**), San Diego, USA
 Designed and validated heuristics for inferring policy relationships between Internet Autonomous Systems (ASs) from routing paths. Held a leading role in the launch of the CAIDA AS Rank and AS Relationships Dataset projects.
- 8/2004–12/2004 Research Assistant
Georgia Institute of Technology, Atlanta, USA
 Designed and developed BGP++, which is a parallel-distributed BGP simulator that integrates the software of the Zebra open source router in the ns-2 network simulator.
- 5/2004–8/2004 Intern
CAIDA, UCSD, San Diego, USA
 Introduced methods for mapping the AS-level topology of the Internet.
- 8/2002–4/2004 Research Assistant
Georgia Institute of Technology, Atlanta, USA
 Designed and developed the BGP++ parallel-distributed BGP simulator.
- 5/2002–8/2002 Intern
 Conklin Corporation, **Intracom Group**, Atlanta, USA
 Designed and implemented SNMP software for managing DSLAMs.

Awards and Honors

- 2017 Appointed **Program Chair** of the 2018 IEEE Global Internet Symposium
- 2016 Appointed **Member** of the Program Committee of the 2017 ACM SIGCOMM Conference, which is considered the leading conference in data communications and networking in the world
- 2016 Published article in the **Science Magazine**, one of the world's top academic journals
- 2016 Acquired a prestigious **FET OPEN Grant** to supervise research on software-defined metamaterials
- 2015 Appointed **General Chair** of the 2016 Passive and Active Measurement Conference
- 2014 Acquired a prestigious **ERC Starting Grant** to conduct research on a new technological model for evolving Internet routing based on SDN principles
- 2013 Won **Best Paper Award** in IEEE Security & Privacy Symposium Workshop on Cyber Crime for research on mapping network forensics processes in an operational network
- 2011 Appointed **Program Chair** of the 2012 Traffic Monitoring and Analysis (TMA) Workshop
- 2008 Won **IBM Invention Achievement Award** for successfully filling 3 patent applications
- 2007 Acquired a prestigious **Marie Curie Reintegration Grant** to return to Europe
- 2006 Won **Best Paper Award** in Springer Passive and Active Measurement (PAM) Conference for research on inferring the type of ASs in the Internet

- 2006 Nominated for **Best Paper Award** in IEEE/ACM/SCS Principles of Advanced and Distributed Simulations (PADS) Workshop for research on generating synthetic annotated AS topologies
- 2004 Won **Gerondelis Foundation Fellowship** for grad studies of Greek scholars in the US
- 2004 Won **Intel Corporation Fellowship** for mentoring undergraduate students in Georgia Institute of Technology
- 2001 Won prestigious **Fulbright Fellowship** for graduate studies in the US
- 2001 Honored to lead the **Graduation Oath** for the highest GPA among all graduating students
- 1999-2001 Won prestigious **National Fellowships Foundation of Greece (IKY) Fellowships** for having one of the five highest yearly GPAs among all students of the Physics Department

Acquired Funding and Project Participation

- 2016–2019 **FET OPEN VisorSurf: A Hardware Platform for Software-driven Functional Metasurfaces**
Supporting project development and carrying out project management duties. The entire project, which involves five partners and a total budget of 5,75 million euros, was initiated in FORTH-ICS by my group members.
- 2015–2018 **Marie Skłodowska-Curie WIVI-2020: Wireless Visionaries for 2020**
Participating in an Initial Training Network - European Industrial Doctorate project. Supervising a PhD student, who is supported by the project.
- 2014–2018 **ERC Starting Grant NetVolution: Evolving Internet Routing – A Paradigm Shift to Foster Innovation**
Acquired a prestigious ERC Starting Grant to conduct research on evolving the Border Gateway Protocol (BGP) of the Internet based on a novel SDN-based paradigm. Total funding: 1,41 million euros.
- 2012–2013 **Privacy-Preserving Data Publishing**
Acquired funding from the Zurich Information Security Center (ZISC) to research risk assessment and privacy preservation technologies for facilitating data owners in deciding if aggregate data, like statistics, association rules, and classifiers, can be safely published. The project was funded by Google through ZISC. Initiated project and led writing of project proposal.
- 2010–2013 **DEcentralized, cooperative and privacy-preserving MONitoring for trustworthiness (DEMONS)**
Participated in the FP7 DEMONS project. Supervised research on the design of efficient secure multi-party computation protocols for distributed network anomaly detection, event correlation, and troubleshooting.
- 2010–2012 **Privacy-Preserving Flow Analyzer**
In partnership with IBM Research Zurich, acquired funding from the Swiss National Science Foundation to transfer the SEPIA multi-party computation library developed in ETH to an IBM pilot privacy-preserving multi-domain traffic flow analyzer. Initiated the project, led writing of project proposal, and coordinated conducted work.
- 2009–2013 **SecMetrics: On Quantifying Operational Security**
Acquired funding from the Swiss Defense Procurement Agency to conduct research on network intrusion detection and on security metrics in enterprise networks. Led writing of project proposal.

- 2008–2010 **IN**frastructure for **he**TEroogeneous, **R**esilient, **SE**cure, **C**omplex, **T**ightly **I**nter-**O**perating **N**etworks (**INTERSECTION**)
Participated in the FP7 INTERSECTION project, which developed a modular security framework for heterogeneous networks. As part of this project, ETH developed novel techniques and tools to generate synthetic anomalies for evaluating network traffic anomaly detection systems. Supervised conducted research and handled project administration.
- 2007–2010 **Marie Curie International Re-integration Grant**
Acquired FP6 funding for conducting research on the management and coordination of network traffic monitoring sensors. The conducted research led to novel monitoring and measurement analysis techniques for mapping service dependencies and for detecting anomalies.
- 2005–2006 **NeTS-NR: Toward Mathematically Rigorous Next-Generation Routing Protocols for Realistic Network Topologies**
Participated in National Science Foundation (NSF) project that designed a mathematically rigorous Internet routing scheme for realistic network topologies. Developed novel techniques for measuring and modeling the topology of the Internet at the level of Autonomous Systems.
- 2004–2006 **Large-Scale Network Simulation for Security and Survivability Evaluation**
Participated in NSF project that built the Georgia Tech Network Simulator (GTNetS). Helped in the design of the BGP simulation modules.
- 2004–2005 **Autonomous-System Ranking**
Participated in project funded by Cisco that developed a ranking method for Internet Autonomous Systems (AS), name the CAIDA AS Rank. Led the design of heuristics for inferring AS relationships.

Publications and Patents

The published papers have received a total of 2,585 citations, according to Google Scholar, up to the 2nd of July, 2017. The corresponding h-index is 23.

Peer-Reviewed Journals and Magazines

- [1] X. Dimitropoulos and G. Riley. Efficient large-scale BGP simulations. *Elsevier Computer Networks, Special Issue on Network Modeling and Simulation*, 50(12), 2006.
- [2] P. Mahadevan, D. Krioukov, M. Fomenkov, B. Huffaker, X. Dimitropoulos, Kc Claffy, and A. Vahdat. The Internet AS-level topology: Three data sources and one definitive metric. *ACM SIGCOMM Computer Communication Review (CCR)*, 36(1), 2006.
- [3] X. Dimitropoulos, D. Krioukov, M. Fomenkov, B. Huffaker, Y. Hyun, Kc Claffy, and G. Riley. AS relationships: Inference and validation. *ACM SIGCOMM Computer Communication Review (CCR)*, 37(1), 2007.
- [4] X. Dimitropoulos, M. Ángeles Serrano, and D. Krioukov. On cycles in AS relationships. *ACM SIGCOMM Computer Communication Review (CCR)*, Note: This is a non-peer-reviewed Editorial Article, 38(3), 2008.
- [5] X. Dimitropoulos, P. Hurley, and A. Kind. Probabilistic lossy counting: An efficient algorithm for finding network traffic heavy hitters. *ACM SIGCOMM Computer Communication Review (CCR)*, 38(1), 2008.
- [6] X. Dimitropoulos, M. Stocklin, P. Hurley, and A. Kind. The eternal sunshine of the sketch data structure. *Elsevier Computer Networks*, 52(17), 2008.
- [7] A. Kind, S. Denazis, X. Dimitropoulos, and B. Claise. Advanced network monitoring brings life to the awareness plane. *IEEE Communications Magazine*, 46(10), 2008.

- [8] D. Dechouniotis, N. Leontiou, X. Dimitropoulos, A. Kind, and S. Denazis. Unveiling the underlying relationships over a network for monitoring purposes. *Wiley International Journal of Network Management*, 19(6), 2009.
- [9] X. Dimitropoulos, D. Krioukov, G. Riley, and A. Vahdat. Graph annotations in modeling complex network topologies. *ACM Transactions on Modeling and Computer Simulation*, 19(4), 2009.
- [10] A. Kind, M. Stoecklin, and X. Dimitropoulos. Histogram-based traffic anomaly detection. *IEEE Transactions on Network and Service Management*, 6(2), 2009.
- [11] M. Burkhart and X. Dimitropoulos. Privacy-preserving distributed network troubleshooting – bridging the gap between theory and practice. *ACM Transactions on Information and Systems Security (TISS)*, 14(4), 2011.
- [12] D. Brauckhoff, X. Dimitropoulos, A. Wagner, and K. Salamatian. Anomaly extraction in backbone networks using association rules. *IEEE/ACM Transactions on Networking (ToN)*, 2012.
- [13] M. Burkhart and X. Dimitropoulos. How to protect data privacy in collaborative network security. *ERCIM News*, 90, 2012.
- [14] F. Fusco, X. Dimitropoulos, M. Vlachos, and L. Deri. pcapIndex: An index for network packet traces with legacy compatibility. *ACM SIGCOMM Computer Communication Review (CCR)*, 42(1), 2012.
- [15] M. Djatmiko, D. Schatzmann, A. Friedman, X. Dimitropoulos, and R. Boreli. Collaborative network outage troubleshooting with secure multiparty computation. *IEEE Communications Magazine*, 51(11), 2013.
- [16] I. Paredes-Oliva, P. Barlet-Ros, and X. Dimitropoulos. FaRNet: Fast recognition of high multi-dimensional network traffic patterns. *Elsevier Computer Networks*, 41(1), 2013.
- [17] A. Dainotti, K. Benson, A. King, Kc Claffy, M. Kallitsis, E. Glatz, and X. Dimitropoulos. Estimating internet address space usage through passive measurements. *ACM SIGCOMM Computer Communication Review (CCR)*, 44(1), 2014.
- [18] A. Gamperli, V. Kotronis, and X. Dimitropoulos. Evaluating the effect of centralization on routing convergence on a hybrid BGP-SDN emulation framework. *ACM SIGCOMM Computer Communication Review (CCR)*, 2014.
- [19] E. Glatz, S. Mavromatidis, B. Ager, and X. Dimitropoulos. Visualizing big network traffic data using frequent pattern mining and hypergraphs. *Springer Journal of Computing*, 2014.
- [20] E. Raftopoulos and X. Dimitropoulos. IDS alert correlation in the wild with EDGe. *IEEE Journal on Selected Areas on Communications (JSAC)*, 2014.
- [21] V. Kotronis, A. Gamperli, and X. Dimitropoulos. Routing centralization across domains via SDN: A model and emulation framework for BGP evolution. *Elsevier Computer Networks*, 2015.
- [22] V. Kotronis, R. Kloti, M. Rost, P. Georgopoulos, B. Ager, S. Schmid, and X. Dimitropoulos. Investigating the potential of the inter-IXP multigraph for the provisioning of guaranteed end-to-end services. *SIGMETRICS Performance Evaluation Review (PER)*, 2015.
- [23] A. Dainotti, E. Katz-Bassett, and X. Dimitropoulos. The BGP hackathon 2016 report. *ACM SIGCOMM Computer Communication Review (CCR)*, Note: This is a non-peer-reviewed Editorial Article, 2016.
- [24] D. Gkounis, V. Kotronis, C. Liaskos, and X. Dimitropoulos. On the Interplay of Link-Flooding Attacks and Traffic Engineering. *ACM SIGCOMM Computer Communication Review (CCR)*, 2016.
- [25] R. Kloeti, B. Ager, V. Kotronis, G. Nomikos, and X. Dimitropoulos. A Comparative Look into Public IXP Datasets. *ACM SIGCOMM Computer Communication Review (CCR)*, 2016.

- [26] C. Liaskos, A. Tsioliariidou, A. Pistillides, I.F. Akyildiz, N. Kantartzis, A. Lalas, X. Dimitropoulos, S. Ioannidis, M. Kafesaki, and C. Soukoulis. Design and Development of Software Defined Metamaterials for Nanonetworks. *IEEE Circuits and Systems Magazine*, 2016.
- [27] N. B. Weidmann, S. Benitez-Baleato, P. Hunziker, E. Glatz, and X. Dimitropoulos. Digital discrimination: Political bias in Internet service provision across ethnic groups. *Science*, 2016.
- [28] C. Liaskos, X. Dimitropoulos, and L. Tassiulas. Backpressure on the backbone: A lightweight, non-intrusive traffic engineering approach. *IEEE Transactions on Network and Service Management*, 2017.

Peer-Reviewed Conferences and Workshops (full papers)

- [29] X. Dimitropoulos and G. Riley. Creating Realistic BGP Models. In *IEEE Conference on Modeling, Analysis and Simulation of Computer and Telecommunication Systems (MAS-COTS)*, 2003.
- [30] X. Dimitropoulos and G. Riley. Large-scale Simulation Models of BGP. In *IEEE Conference on Modeling, Analysis and Simulation of Computer and Telecommunication Systems (MASCOTS)*, 2004.
- [31] J. Kim, S. Ko, D. Nicol, X. Dimitropoulos, and G. Riley. A BGP attack against traffic engineering. In *IEEE/ACM/SCS Winter Simulation Conference (WSC)*, 2004.
- [32] X. Dimitropoulos, D. Krioukov, B. Huffaker, Kc Claffy, and G. Riley. Inferring AS Relationships: Dead End or Lively Beginning? In *Springer Workshop on Experimental Algorithms (WEA)*, 2005.
- [33] X. Dimitropoulos, D. Krioukov, and G. Riley. Revisiting Internet AS-Level Topology Discovery. In *Springer Passive and Active Measurement Conference (PAM)*, 2005.
- [34] X. Dimitropoulos, D. Krioukov, G. Riley, and Kc Claffy. Revealing the Autonomous System Taxonomy: The Machine Learning Approach. In *Springer Passive and Active Measurement Conference (PAM)*, 2006.
- [35] X. Dimitropoulos and G. Riley. Modeling Autonomous-Systems Relationships. In *IEEE/ACM/SCS Principles of Advanced and Distributed Simulations (PADS)*, 2006.
- [36] D. Dechouniotis, X. Dimitropoulos, A. Kind, and S. Denazis. Dependency Detection Using a Fuzzy Inference Engine. In *IFIP/IEEE International Workshop on Distributed Systems, Operations and Management (DSOM)*, 2007.
- [37] D. Brauckhoff, X. Dimitropoulos, A. Wagner, and K. Salamatian. Anomaly Extraction in Backbone Networks using Association Rules. In *ACM SIGCOMM Internet Measurement Conference (IMC)*, 2009.
- [38] X. Dimitropoulos, P. Hurley, A. Kind, and M. Stoecklin. On the 95-percentile billing method. In *Springer Passive and Active Measurement Conference (PAM)*, 2009.
- [39] M. Burkhart and X. Dimitropoulos. Fast Privacy-Preserving Top-k Queries using Secret Sharing (invited). In *IEEE International Conference on Computer Communication and Networks (ICCCN)*, 2010.
- [40] M. Burkhart, M. Strasser, D. Many, and X. Dimitropoulos. SEPIA: Privacy-Preserving Aggregation of Multi-Domain Network Events and Statistics. In *USENIX Security Symposium*, 2010.
- [41] D. Schatzmann, W. Mulbauer, T. Spyropoulos, and X. Dimitropoulos. Digging into HTTPS: Flow-Based Classification of Webmail Traffic. In *ACM SIGCOMM Internet Measurement Conference (IMC)*, 2010.
- [42] E. Raftopoulos and X. Dimitropoulos. Detecting, Validating and Characterizing Computer Infections in the Wild. In *ACM SIGCOMM Internet Measurement Conference (IMC)*, 2011.

- [43] A. Abdelkefi, Y. Jiang, and X. Dimitropoulos. K-sparse approximation for traffic histogram dimensionality reduction. In *International Conference on Network and Service Management (CNSM)*, 2012.
- [44] F. Fusco, M. Vlachos, and X. Dimitropoulos. RasterZIP: Compressing network monitoring data with support for partial decompression. In *ACM SIGCOMM Internet Measurement Conference (IMC)*, 2012.
- [45] E. Glatz and X. Dimitropoulos. Classifying Internet One-way Traffic. In *ACM SIGCOMM Internet Measurement Conference (IMC)*, 2012.
- [46] V. Kotronis, X. Dimitropoulos, and B. Ager. Outsourcing the routing control logic: better internet routing based on sdn principles. In *ACM Hot Topics in Networks (HotNets)*, 2012.
- [47] I. Paredes-Oliva, I. Castell-Uroz, P. Barlet-Ros, X. Dimitropoulos, and J. Sole-Pareta. Practical anomaly detection based on classifying frequent traffic patterns. In *IEEE Global Internet Symposium*, 2012.
- [48] E. Raftopoulos, M. Egli, and X. Dimitropoulos. Shedding light on log correlation in network forensics analysis. In *International Conference on Detection of Intrusions and Malware, and Vulnerability Assessment (DIMVA)*, 2012.
- [49] M. Djatmiko, D. Schatzmann, A. Friedman, X. Dimitropoulos, and R. Boreli. Federated flow-based approach for privacy preserving connectivity tracking. In *ACM SIGCOMM CoNext*, 2013.
- [50] F. Fusco, M. Vlachos, X. Dimitropoulos, and L. Deri. Indexing million of packets per second using GPUs. In *ACM SIGCOMM Internet Measurement Conference (IMC)*, 2013.
- [51] E. Raftopoulos and X. Dimitropoulos. Understanding network forensics analysis in an operational environment. In *IEEE Security & Privacy Symposium Workshop on Cyber Crime*, 2013.
- [52] J. Yan and X. Dimitropoulos. Revisiting the anomalous loss performance of udp traffic in routers with very small buffers. In *IEEE International Symposium on Computer Communications (ISCC)*, 2014.
- [53] S. Baleato, N. Weidmann, P. Gigis, X. Dimitropoulos, G. Eduard, and T. Brian. Transparent estimation of internet penetration from network observations. In *Springer Passive and Active Measurement Conference (PAM)*, 2015.
- [54] R. Kloti, V. Kotronis, B. Ager, and X. Dimitropoulos. Policy-compliant path diversity and bisection bandwidth. In *IEEE INFOCOM*, 2015.
- [55] E. Raftopoulos, E. Glatz, X. Dimitropoulos, and A. Dainotti. How dangerous is internet scanning? a measurement study of the aftermath of an internet-wide scan. In *Springer Traffic Monitoring and Analysis (TMA)*, 2015.
- [56] V. Kotronis, R. Kloeti, M. Rost, P. Georgopoulos, B. Ager, S. Schmidt, and X. Dimitropoulos. Stitching Inter-Domain Paths over IXPs. In *ACM Symposium on SDN Research (SOSR)*, 2016.
- [57] C. Liaskos, V. Kontronis, and X. Dimitropoulos. A Novel Framework for Modeling and Mitigating Distributed Link Flooding Attacks. In *IEEE INFOCOM*, 2016.
- [58] G. Nomikos and X. Dimitropoulos. tralXroute: Detecting IXPs in traceroute paths. In *Passive and Active Measurement Conference (PAM)*, 2016.
- [59] T. Assefa, R. Hoque, E. Tragos, and X. Dimitropoulos. SDN-based Local Mobility Management with X2-interface in Femtocell Networks. In *IEEE Workshop on Computer Aided Modeling and Design of Communication Links and Networks (CAMAD)*, 2017.
- [60] E. Lakiotakis, C. Liaskos, and X. Dimitropoulos. Application-Network Collaboration Using SDN for Ultra-Low Delay Teleorchestras. In *IEEE Workshop on Performance Evaluation of Communications in Distributed Systems and Web based Service Architectures*, 2017.

- [61] P. Sermpezis and X. Dimitropoulos. Can SDN Accelerate BGP Convergence? A Performance Analysis of Inter-domain Routing Centralization. In *IFIP Networking*, 2017.
- [62] P. Sermpezis, G. Nomikos, and X. Dimitropoulos. Re-mapping the Internet: Bring the IXPs into Play. In *IEEE INFOCOM NetSciCom Workshop*, 2017.

Patents

- [63] D. Bauer, D. Dechouniotis, X. Dimitropoulos, and A. Kind. Valley-free shortest path method. **US Patent** 7907596, 2011.
- [64] X. Dimitropoulos, P. Hurley, A. Kind, and M. Stoecklin. Probabilistic lossy counting. **US Patent** 7937388, 2011.
- [65] X. Dimitropoulos, A. Kind, B. Jansen, and J. Massar. Determination of network topology using flow-based traffic information. **US Patent** 7864707, 2011.

Peer-Reviewed Conferences and Workshops (extended abstracts)

- [66] X. Dimitropoulos, D. Krioukov, G. Riley, and Kc Claffy. Classifying the types of Autonomous Systems in the Internet (poster). In *ACM SIGCOMM*, 2005.
- [67] X. Dimitropoulos, G. Riley, D. Krioukov, and R. Sundaram. Towards a topology generator modeling AS relationships (poster). In *IEEE International Conference on Network Protocols (ICNP)*, 2005.
- [68] X. Dimitropoulos and A. Kind. Simplifying the configuration of network monitoring probes. In *CERT FloCon Conference*, 2008.
- [69] M. Burkhart, M. Strasser, D. Many, and X. Dimitropoulos. SEPIA: Aggregation of network measurements using multiparty computation (poster). In *Springer Passive and Active Measurement Conference (PAM)*, 2010.
- [70] I. Paredes-Oliva, X. Dimitropoulos, M. Molina, P. Barlet-Ros, and D. Brauckhoff. Automating root-cause analysis of network anomalies using frequent itemset mining (demo). In *ACM SIGCOMM*, 2010.
- [71] D. Schatzmann, W. Mulbauer, T. Spyropoulos, X. Dimitropoulos, and Bernhard Plattner. The Internet mail system from the network's perspective (poster). In *Springer Passive and Active Measurement Conference (PAM)*, 2010.
- [72] X. Dimitropoulos. Research roadmap on security measurements. In *SysSec Workshop*, 2011.
- [73] E. Glatz and X. Dimitropoulos. Classifying internet one-way traffic (poster). In *ACM SIGMETRICS*, 2012.
- [74] M. Djatmiko, D. Schatzmann, A. Friedman, X. Dimitropoulos, and R. Boreli. Privacy preserving distributed network outage monitoring (poster). In *IEEE INFOCOM*, 2013.
- [75] V. Kotronis, X. Dimitropoulos, and B. Ager. Outsourcing routing using SDN: The case for a multi-domain routing operating system (poster). In *Open Networking Summit*, 2013.
- [76] I. Paredes-Oliva, P. Barlet-Ros, and X. Dimitropoulos. FaRNet: Fast recognition of high multi-dimensional network traffic patterns (poster). In *ACM SIGMETRICS*, 2013.
- [77] A. Gamperli, V. Kotronis, and X. Dimitropoulos. Evaluating the effect of centralization on routing convergence on a hybrid BGP-SDN emulation framework (demo). In *ACM SIGCOMM*, 2014.
- [78] V. Kotronis, X. Dimitropoulos, R. Kloti, B. Ager, P. Georgopoulos, and S. Schmid. Control exchange points: Providing QoS-enabled end-to-end services via SDN-based inter-domain routing orchestration. In *Open Networking Summit (ONS)*, 2014.
- [79] V. Kotronis, R. Kloti, M. Rost, P. Georgopoulos, B. Ager, S. Schmid, and X. (poster) Dimitropoulos. Investigating the potential of the inter-IXP multigraph for the provisioning of guaranteed end-to-end services. In *ACM SIGMETRICS*, 2015.

- [80] G. Chaviaras, P. Gigis, P. Sermpezis, and X. Dimitropoulos. Artemis: Real-time detection and automatic mitigation for bgp prefix hijacking (demo). In *ACM SIGCOMM*, 2016.
- [81] P. Sermpezis and X. Dimitropoulos. Inter-domain SDN: Analysing the effects of routing centralization on BGP convergence time. In *ACM SIGMETRICS MAMA Workshop*, 2016.
- [82] T. Assefa, R. Hoque, E. Tragos, and X. Dimitropoulos. SDN-based Handover Management in Enterprise Networked Femtocells with X2 Forwarding Scheme (poster). In *IEEE INFOCOM*, 2017.
- [83] P. Gigis, V. Kotronis, E. Aben, S. D. Strowes, and X. Dimitropoulos. Characterizing User-to-User Connectivity with RIPE Atlas. In *IETF Applied Networking Research Workshop (ANRW)*, 2017.

Selected Service

Conference Organization

- 2018 **Program Chair**
IEEE Global Internet (GI) Symposium (in conjunction with IEEE INFOCOM 2018), Honolulu, USA
- 2016 - present **Steering Committee**
Passive and Active Measurement (PAM) Conference
- 2016 **General Chair**
Passive and Active Measurement (PAM) Conference, Heraklion, Greece
- 2016 **Organizing Committee**
The BGP Hackathon, San Diego, USA
- 2015 **General Chair**
Summer School on Software Defined Networks (SDNschool), Heraklion, Greece
- 2014 **Organizing Committee**
ACM CoNext, Sydney, Australia
- 2014 **Organizing Committee**
ACM SIGCOMM, Chicago, USA
- 2012 - 2016 **Steering Committee**
COST Traffic Monitoring and Analysis (TMA) Workshop
- 2012 **Program Chair**
Traffic Monitoring and Analysis (TMA) Workshop, Vienna, Austria
- 2010 **Local Arrangements Chair**
Passive and Active Measurement (PAM) Conference, Zurich, Switzerland
- 2010 **Local Arrangements Chair**
COST Traffic Monitoring and Analysis (TMA) Workshop, Zurich, Switzerland
- 2009 **Program Chair**
IEEE International Symposium on Network Evolution and Routing Innovation, Chengdu, China
- Conference Program Committees (PC)
- 2017 **PC Member**
ACM SIGCOMM, Los Angeles, USA
- 2017 **PC Member**
Passive and Active Measurement (PAM) Conference, Sydney, Australia
- 2015 **PC Member**
ACM SIGCOMM Internet Measurement Conference (IMC), Tokyo, Japan

- 2015 **PC Member**
IEEE Conference on Network Function Virtualization and Software Defined Networks, Berlin, Germany
- 2014 **PC Member**
ACM SIGCOMM Distributed Cloud Computing (DCC) Workshop, Chicago, USA
- 2014 **PC Member**
ACM SIGCOMM Internet Measurement Conference (IMC), Vancouver, Canada
- 2014 **PC Member**
IEEE ICC - Next-Generation Networking Symposium, Sydney, Australia
- 2013 **PC Member**
Passive and Active Measurement (PAM) Conference, Hong Kong
- 2013 **PC Member**
ACM CoNEXT, Santa Barbara, USA
- 2012 **PC Member**
ACM SIGCOMM Internet Measurement Conference (IMC), Boston, USA
- 2012 **PC Member**
USENIX Hot-ICE: Workshop on Hot Topics in Management of Internet, Cloud, and Enterprise Networks and Services, San Jose, USA
- 2012 **PC Member**
IEEE International Symposium on Computer Communications (ISCC), Cappadocia, Turkey
- 2011 **PC Member**
ACM SIGCOMM Internet Measurement Conference (IMC), Berlin, Germany
- 2011 **PC Member**
IEEE International Symposium on Computer Communications (ISCC), Corfu, Greece
- 2010 **PC Member**
COST Traffic Monitoring and Analysis (TMA) Workshop, Zurich, Switzerland
- 2008 **PC Member**
COST Traffic Monitoring and Analysis (TMA) Workshop, Aachen, Germany
- 2006 **PC Member**
ACM SIGCOMM CoNext Student Workshop, Lisboa, Portugal
- Service in European Projects
- 2015–2017 **Advisory Board**
Member of the H2020 ENDEAVOUR project External Advisory Board.
- 2009–2012 **Management Committee Member**
COST Action Traffic Monitoring and Analysis (TMA)
- 2010 **Expert Group Member**
Participated in meetings of the Future Internet Assembly towards developing a reference Future Internet Architecture
- External Reviewer
- 2012 Microsoft Research PhD Scholarship Programme

2004–present IEEE/ACM Transactions on Networking (ToN), ACM SIGCOMM Computer Communication Review (CCR), IEEE Journal on Selected Areas on Communications (JSAC), ACM Transactions on Dependable and Secure Computing (TDSC), ACM SIGMETRICS Performance Evaluation Review (PER), IEEE Modeling, Analysis, and Simulation of Computer and Telecommunication Systems (MASCOTS), IEEE International Workshop on Wireless Local Networks (WLN), IEEE/ACM/SCS Principles of Advanced and Distributed Simulations, IEEE/ACM/SCS Winter Simulation Conference, EPL Europhysics Letters, Elsevier Microprocessors and Microsystems

Courses Taught

- Spring 2017 **Computer Networks (CN)** (HY-335)
Computer Science Department, University of Crete
Updated the teaching material and the exercises of the course.
- Fall 2016 **Security, Privacy, and Intelligence on the Internet** (HY-533)
Computer Science Department, University of Crete
Created entirely new post-graduate course focused on Internet security, privacy, and intelligence research topics. The course also introduces through practical projects the principles of Design Thinking; it applies Design Thinking to teach students how to solve research challenges.
- Fall 2016 **Software-Defined Networks (SDN)** (HY-436)
Computer Science Department, University of Crete
Updated the teaching material of the course. All lectures were recorded and published online.
- Spring 2016 **Computer Networks** (HY-335)
Computer Science Department, University of Crete
Entirely updated all the lectures material of the course.
- Fall 2015 **Software-Defined Networks (SDN)** (HY-436)
Computer Science Department, University of Crete
Created new exercises and teaching material.
- Spring 2015 **Computer Networks** (HY-335)
Computer Science Department, University of Crete
Updated the teaching material of the course.
- Fall 2014 **Software-Defined Networks** (HY-436)
Computer Science Department, University of Crete
Introduced entirely new undergraduate course on SDN with a strong emphasis on hands-on assignments.
- Spring 2014 **Computer Networks** (HY-335)
Computer Science Department, University of Crete
Updated entirely the CN course of the Computer Science Department with new teaching material and assignments.
- Fall 2013 **Advanced Topics in Communication Networks (ATCN)** (227-0575-00L)
Department of Information Technology and Electrical Engineering, ETH Zürich
With Dr. B. Ager, Dr. S. Neuhaus, Dr. K. Hummel, Dr. M. Happe, V. Kotronis and Prof. B. Plattner, taught ATCN course. Built entirely new curriculum dedicated to Software-Defined Networking.
- Spring 2013 **Software-Defined Networks** (??-490.31)
Computer Science Department, University of Crete
Introduced new short (6-week) course on SDN.

- Spring 2013 **Communication Networks** (227-0120-00L)
Department of Information Technology and Electrical Engineering, ETH Zürich
With Dr. S. Neuhaus and Dr. K. Hummel, taught CN course.
- Spring 2012 **Communication Networks** (227-0120-00L)
Department of Information Technology and Electrical Engineering, ETH Zürich
With Dr. S. Neuhaus and Dr. K. Hummel, taught CN course. Introduced lecture on software-defined networking.
- Fall 2011 **Advanced Topics in Communication Networks** (227-0575-00L)
Department of Information Technology and Electrical Engineering, ETH Zürich
With Dr. F. Legendre, Dr. W. Muhlbauer, Dr. S. Neuhaus and Prof. B. Plattner, taught ATCN course. Updated curriculum with latest topics on Internet measurements.
- Spring 2011 **Communication Networks** (227-0120-00L)
Department of Information Technology and Electrical Engineering, ETH Zürich
Gave guest lecture on Internet routing.
- Fall 2010 – Spring 2011 **Specialization in Networks and Communications** (PLHS62)
MSc in Information Systems, Open University of Cyprus (OUC)
Coordinated and taught the Networks and Communications thematic union of OUC. Updated curriculum with entirely new textbook that focuses on practical aspects of network security. Prepared student assignments.
- Fall 2010 **Advanced Topics in Communication Networks** (227-0575-00L)
Department of Information Technology and Electrical Engineering, ETH Zürich
With Dr. F. Legendre, Dr. W. Muhlbauer, Dr. T. Spyropoulos and Prof. B. Plattner, taught ATCN course. Updated curriculum with latest topics on Internet measurements. Introduced course projects.
- Spring 2010 **Communication Networks** (227-0120-00L)
Department of Information Technology and Electrical Engineering, ETH Zürich
Gave guest lecture on Internet routing.
- Fall 2009 – Spring 2010 **Specialization in Networks and Communications** (PLHS62)
MSc in Information Systems, Open University of Cyprus
Developed and coordinated a brand-new thematic union that gives students practical experience with computer networks and security.
- Fall 2009 **Advanced Topics in Communication Networks** (227-0575-00L)
Department of Information Technology and Electrical Engineering, ETH Zürich
With Dr. F. Legendre, Dr. T. Spyropoulos, and Prof. B. Plattner, taught ATCN course. Updated curriculum with new lectures covering selected topics on Internet measurement research. Prepared related assignments.
- Spring 2009 **Communication Networks** (227-0120-00L)
Department of Information Technology and Electrical Engineering, ETH Zürich
Gave guest lectures on Internet routing.
- Fall 2008 – Spring 2009 **Specialization in Computer Architecture and Computer Networks** (PLHS52)
MSc in Information Systems, Open University of Cyprus
With Prof. C. Halatsis, re-designed curriculum introducing material on Operating Systems.

Supervised Students and Researchers

Post-doctoral Researchers

- 1 Christos Liaskos, 2014 – present
Research Area: Software-Defined Networks, Wireless Networks, Nanonetworks
Institute: FORTH-ICS
- 2 Ioanna Papafili, 2015 – 2016
Research Area: Internet Measurements, Software-Defined Networks
Institute: FORTH-ICS
- 3 Pavlos Sermpezis, 2015 – present
Research Area: Internet Routing, Software-Defined Networks
Institute: FORTH-ICS
- 4 Vasileios Kotronis, 2016 – present
Research Area: Internet Routing, Software-Defined Networks
Institute: FORTH-ICS

Research Engineers

- 1 George Nomikos, 2014 – present
Research Area: Internet Measurements
Institute: FORTH-ICS
- 2 Dimitrios Gkounis, 2014 – 2015
Research Area: Software-Defined Networks
Institute: FORTH-ICS
- 3 Lefteris Manassakis, 2015 – present
Research Area: Internet Routing, Software-Defined Networks
Institute: FORTH-ICS

PhD Dissertations

- 1 Daniela Brauckhoff (Co-supervised with Prof. B. Plattner), 2008 – 2009
Research Area: Anomaly Detection
Institute: ETH Zurich
- 2 Martin Burkhart (Co-supervised with Prof. B. Plattner), 2008 – 2011
Research Area: Privacy, Collaborative Network Security, Applied Secure Multiparty Computation
Institute: ETH Zurich
- 3 Francesco Fusco (Co-supervised with Prof. B. Plattner), 2009 – 2012
Research Area: Indexing and Archival of Network Measurement Data
Institute: ETH Zurich (external PhD student in IBM Research, Zurich)
- 4 Ignasi Paredes-Oliva (Co-supervised with Prof. P. Barlet-Ros), 2009 – 2013
Research Area: Network Traffic Monitoring
Institute: Universitat Politecnica de Catalunya
- 5 Eduard Glatz (Co-supervised with Prof. B. Plattner), 2009 – 2013
Research Area: Network Traffic Classification and Visualization
Institute: ETH Zurich
- 6 Elias Raftopoulos (Co-supervised with Prof. B. Plattner), 2009 – 2014
Research Area: Network Intrusion Detection, Malware, Infections
Institute: ETH Zurich

- 7 Vasileios Kotronis (Co-supervised with Prof. B. Plattner), 2011 – 2015
Research Area: Software-Defined Networks
Institute: ETH Zurich
- 8 Tewelde Assefa, 2016 – present
Research Area: Wireless Networks, Software-Defined Networks
Institute: University of Crete
- 9 Emmanouil Lakiotakis, 2017 – present
Research Area: Network Modelling, Software-Defined Networks
Institute: University of Crete

MSc Theses

- 1 Fotios Kerasiotis, 2009 – 2011
Thesis title: Space-time Visualization of Blacklisted IP addresses
Institute: Open University of Cyprus
- 2 Raphael Blatter (Co-supervised with E. Glatz, and Prof. B. Stiller), 2010 – 2011
Thesis Title: Extending HAPviewer: Time Window, Flow Classification, and Geolocation
Institute: University of Zurich
- 3 Matthias Egli (Co-supervised with E. Raftopoulos and Prof. B. Plattner), 2011
Thesis title: Security Assessment of Infection Incidents in the ETH University Campus
Institute: ETH Zurich
- 4 Stylianos Mavromatidis, 2010 – 2012
Thesis title: Evaluation of Frequent Itemset Mining for Summarizing and Monitoring Network Traffic
Institute: Open University of Cyprus
- 5 Merkourios Gogos, 2011 – 2012
Thesis title: Application and Evaluation of Quality of Experience (QoE) and Service (QoS) Metrics on a VoIP Telephone Exchange
Institute: Open University of Cyprus
- 6 Konstantinos Karampogias (Co-supervised with P. Stuedi and Prof. B. Plattner), 2012 – 2013
Thesis title: Leveraging RDMA Semantics in Hadoop Distributed Filesystem
Institute: ETH Zurich (external MSc thesis in IBM Research, Zurich)
- 7 Jochen Mattes (Co-supervised with V. Kotronis and Prof. B. Plattner), 2012 – 2013
Thesis title: Policy Validation in OpenFlow Networks
Institute: ETH Zurich (in part external MSc thesis in Stanford University)
- 8 Dimitrios Gkounis (Co-supervised with V. Kotronis and Prof. B. Plattner), 2013 – 2014
Thesis title: Cross-domain DoS Link-flooding Attack Detection and Mitigation Using SDN Principles
Institute: ETH Zurich
- 9 Adrian Gamperli (Co-supervised with V. Kotronis and Prof. B. Plattner), 2013 – 2014
Thesis title: Evaluating the Effect of SDN Centralization on Internet Routing Convergence
Institute: ETH Zurich

- 10 Emmanouil Lakiotakis, 2015 – 2017
Thesis title: SDN-based Application-Network Collaboration for Low-Latency Networked Music Performance Systems
Institute: University of Crete
- 11 Michalis Bamiedakis, 2015 – present
Thesis title: Farcast: Improving Forecasting Accuracy via SDN
Institute: University of Crete
- 12 Georgios Vardakis (Co-supervised with Dr. S. Papadakis), 2015 – present
Tentative thesis title: Development and Exploitation of SDR-Based MIMO System
Institute: University of Crete
- 13 Konstantinos Triantafilakis (Co-supervised with Dr. S. Papadakis), 2015 – present
Tentative thesis title: Multiple Wireless Standard Cognitive-sensing Mechanism
Institute: University of Crete
- 14 Alexandros Milolidakis, 2016 – present
Tentative thesis title: Internet Routing Methods, Control, and Transparency
Institute: University of Crete
- 15 Dimitris Mavrommatis, 2016 – present
Tentative thesis title: Real-time Mitigation of BGP Prefix Hijacking using ONOS
Institute: University of Crete
- 16 Petros Gigis, 2017 – present
Tentative thesis title: Measuring the Internet Connectivity Between User Populations Using Active Measurement Approaches
Institute: University of Crete
- 17 Nikolaos Karamalegkos (Co-supervised with Dr. S. Papadakis), 2017 – present
Tentative thesis title: Development of Middleware Platform for IoT Devices
Institute: University of Crete
- 18 Georgios Tsirakakis, 2017 – present
Tentative thesis title: Novel Techniques for Fault Recovery in Data Centers using SDN
Institute: University of Crete

BSc Theses

- 1 Petros Gigis, 2015
Thesis title: Internet Penetration Estimation Based on Internet Measurements
Institute: University of Crete
- 2 Anastasia Ntagianta (Co-supervised with Dr. S. Papadakis), 2015
Thesis title: Outdoor Sensor Network Set-up and Experiment
Institute: University of Crete
- 3 Nikolaos Stefanou (Co-supervised with Dr. S. Papadakis), 2015
Thesis title: Indoor Sensor Network Set-up and Experiment
Institute: University of Crete
- 4 Antonios Tzougkarakis (Co-supervised with Dr. S. Papadakis), 2015
Thesis title: SDR-based Sensor Network Development
Institute: University of Crete
- 5 Gavriil Chaviaras, 2015 – 2016
Thesis title: Minilogic: Graphical Environment for Managing SDN Simulations
Institute: University of Crete

- 6 Nestoras Sdoukos (Co-supervised with Dr. S. Papadakis), 2016
Thesis title: GPU-based Real-time Spectrum Analyzer Implementation
Institute: University of Crete
- 7 Louka Kovatsevic (Co-supervised with Dr. E. Tragos), 2016
Thesis title: Implementation of Sensor Measurements Collector
Institute: University of Crete
- 8 Elias Matzelios, 2016 – 2017
Thesis title: Fortifying Network Topologies Against DDoS Attacks Using Optimization Algorithms
Institute: University of Crete
- 9 Michael Vassalos (Co-supervised with Dr. S. Papadakis), 2016 – 2017
Thesis title: GPU-based Real-Time Spectrum Analyzer User Interface Implementation
Institute: University of Crete
- 10 Georgios Floros (Co-supervised with Dr. S. Papadakis), 2016 – 2017
Thesis title: FPGA Implementation for the PCI-e Communication Support in SDR Card
Institute: University of Crete
- 11 Chrysoula Katsika (Co-supervised with Dr. S. Papadakis), 2016 – present
Thesis title: Implementation of API for Supporting Third-party Devices in OpenIoT
Institute: University of Crete
- 12 Christos Kadigkos (Co-supervised with Dr. S. Papadakis), 2017 – present
Thesis title: Red Pitaya Implementation of Baseband Sweep Phase Difference Detector
Institute: University of Crete

Exam Committee Member of Other PhD and MSc Students

- 1 Daniela Brauckhoff, 2009
PhD Dissertation title: Network Traffic Anomaly Detection and Evaluation
Institute: ETH Zurich
- 2 Martin Burkhart, 2011
PhD Dissertation title: Enabling Collaborative Network Security with Privacy-Preserving Data Aggregation
Institute: ETH Zurich
- 3 Francesco Fusco, 2012
PhD Dissertation title: High-speed Indexing and Archival of Network Measurements Data
Institute: ETH Zurich
- 4 Josep Sanjuas, 2012
PhD Dissertation title: Efficient Algorithms for Passive Network Measurement
Institute: Universitat Politcnica Catalunya
- 5 Dominik Schatzmann, 2012
PhD Dissertation title: Correlating Flow-based Network Measurements for Service Monitoring and Network Troubleshooting
Institute: ETH Zurich
- 6 Eduard Glatz, 2013
PhD Dissertation title: Novel Techniques for Monitoring Network Traffic at the Flow Level
Institute: ETH Zurich

- 7 Ioannis Mastorakis, 2015
MSc Thesis title: The implementation of ImmACS - An Immersive Audio Communication System
Institute: University of Crete
- 8 Pavlos Charonyktakis, 2015
MSc Thesis title: On User-Centric Modular QoE Prediction for VoIP Based on Machine-Learning Algorithms
Institute: University of Crete
- 9 Michalis Katsarakis, 2015
MSc Thesis title: u-map: Empowering Users and Telecom Providers by Employing the Crowd-Sourcing Paradigm
Institute: University of Crete
- 10 Charalampos Meidanis, 2015
MSc Thesis title: On the Impact of User Demand and Willingness-to-pay on Price Setting of MVNO and MNO Assuming Unlimited Network Capacity
Institute: University of Crete
- 11 Panagiotis Papadopoulos, 2016 – present
Tentative PhD Dissertation title: Enhancing Online Privacy in Modern Web Applications
Institute: University of Crete
- 12 Georgios Fortetsanakis, 2016
PhD Dissertation title: A Multi-layer Game-theoretical Framework for Modelling Wireless Access and Spectrum Markets
Institute: University of Crete
- 13 Filipos Ineglis, 2016
MSc Thesis title: Incorporating Microphone Arrays into Automatic Speech Recognition
Institute: University of Crete
- 14 Michalis Peronikolis, 2016
MSc Thesis title: Audio Signal Processing for Immersive Audio Applications
Institute: University of Crete
- 15 Michalis Diamantaras, 2017
MSc Thesis title: Powerslave: Analyzing the Energy Consumption of Mobile Antivirus Software
Institute: University of Crete