# Emmanouel (Manos) Varvarigos

Professor
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## SHORT BIO

Emmanouel (Manos) Varvarigos was born in Athens, Greece, in 1965. He received a Diploma in Electrical and Computer Engineering from the National Technical University of Athens (NTUA) in 1988, and the M.S. and Ph.D. degrees in Electrical Engineering and Computer Science from the Massachusetts Institute of Technology (MIT) in 1990 and 1992, respectively.

He has held faculty positions at the University of California, Santa Barbara (1992-1998, ECE dept, as an Assistant and later an Associate Professor with tenure), Delft University of Technology, the Netherlands (1998-2000, ECE dept, as an Associate Professor), University of Patras, Greece (2000-June 2015, CEID, as a Professor), and National Technical University of Athens (June 2015-now, ECE dept, as a Professor). He was for several years the Director of the Hardware, Communications and Networking Division of CEID. From 2003-2017, he was also the Scientific Director of the Greek School Network and Network Technologies Division of the Computer Technology Institute "Diophantus" (CTI), which through its involvement in pioneering research and development projects, has a major role in the development of network technologies and telematic services in Greece, and is responsible for development and operation of the Greek School Network, the largest public Network in Greece.

Professor Varvarigos has served in the organizing and program committees of over 150 international conferences, primarily in the networking area, and in national committees. He has participated in over 35 USA and EU-funded research projects in the areas of optical networking, optical interconnects, grid and cloud computing, and smart energy grids, and in many national research projects, and has been the consortium coordinator in 6 of them. He has also worked as a researcher at Bell Communications Research, and has consulted with several companies in the US and in Europe. He has over 400 publications in refereed international journals and conferences. His research activities are in the areas of optical communication networks, optical networking algorithms and protocols, optical interconnects for Data Centers, network protocols, 5G networks, and network services.

A more detailed CV follows.

**AREAS OF RESEARCH ACTIVITY**

- Data communication networks. Algorithms, protocols and architectures. Network data analytics.
- Optical interconnects for Datacenters and HPC. Optical PCB layouts. VLSI layouts.
- Planning and operation tools for optical networks. Software Defined Networking.
- 5G networks (optical-wireless, fronthaul-backhaul-metro-core). Passive Optical Networks (PONs).
- Edge and cloud computing. Resource orchestration.
- Smart Electricity Grids. Electricity markets
- Systems and networks remote management tools.

**EDUCATION**

**1989-1992:** PhD, Massachusetts Institute of Technology (MIT), Cambridge, USA.
Department**:** Electrical Engineering and Computer Science (G.P.A.5.0/5.0),  Laboratory of Information and Decision Systems (LIDS)
Thesis Title: "Static and dynamic communication in parallel computing"
Thesis Advisor:  Prof. Dimitri P. Bertsekas

**1991**: Electrical Engineer Degree, Massachusetts Institute of Technology, MA (G.P.A.5.0/5.0)

**1988-1989**: MSc, Massachusetts Institute of Technology (M.I.T.), Cambridge, MA, USA
Department**:** ¨Electrical Engineering and Computer Science (G.P.A.5.0/5.0), Laboratory of Information and Decision Systems (LIDS)
Thesis Title: "Optimal Communication Algorithms for Multiprocessor Computers"
Thesis Advisor:  Prof. Dimitri P. Bertsekas

**1983-1988:** Diploma, National Technical University of Athens, Greece. Major: Electrical Engineering. (G,P.A. 9.83/10, rank 1st out of 250 students)

**ACADEMIC POSITIONS**

**November 2023 - today**: Vice Rector of Research, Innovation, Outreach and Public Relations, National Technical University of Athens, Greece.

**June 2015 - today**: Professor, Electrical and Computer Engineering Dept., National Technical University of Athens, Greece. (On leave of absence from January 2017 to January 2019). Also, Director, High Speed Communication Networks Lab, National Technical University of Athens. For the research activities of the lab, see http://hscnl.ece.ntua.gr/

**June 2022-Nov 2023:** Director, Division of Communications, Electronics and Information Systems (elected), of ECE Dept, NTUA.

**Jan 2000 - May 2015**: Professor, Computer Engineering and Informatics Dept., University of Patras, Greece. Also, Director, Communication Networks Lab, University of Patras. For the research activities of CNL, please see http://www.ceid.upatras.gr/faculty/manos/

**2000-2001, 2006-2007, 2010-2012**: Director, Hardware and Computer Architecture Division, Computer Engineering and Informatics Dept., University of Patras, Greece.

**1998-1999**: Associate Professor (with tenure), Dept. of Electrical Engineering, Delft University of Technology, The Netherlands.

**1992-1999**: Assistant Professor and then Associate Professor (with tenure), Dept. of Electrical and Computer Engineering, University of California, Santa Barbara, USA. Also**,** Director, Communication Networks Lab (CNL), University of California, Santa Barbara, USA.

## OTHER PROFESSIONAL EXPERIENCE

**Jan 2017-Jan. 2021**: Member of the Board, of the Computer Technology Institute – Diophantos (CTI), appointed by the Greek Minister of Education.

**2020-2021:** Consultant for Mellanox (later NVIDIA), on Optical Interconnections for All-Optical Datacentres.

**2011-2017** (Scientific Director) and **2003-2011** (Director): Division of School Network and Network Technologies, Computer Technology Institute – Diophantos (CTI). This Division of CTI has about 45 employees, mostly engineers, and a yearly budget exceeding 1.5 Million Euros, excluding the infrastructure costs. The Division is involved in pioneering research and development EU and national projects in the networking and cloud computing areas. It has a major role in the development of network technologies and telematic services in Greece, and is responsible for development and operation of the Greek School Network (GSN), the largest public network in Greece, connecting over 15000 school laboratories in Greece. As Director of GSN I was leading a team of about 120 engineers from CTI and other universities that designed, implemented and are operating the network. A major part of the work was also to ensure that the necessary funding was obtained for the creation and the support of GSN from the Minister of Education, the European Commission, and other funding agencies.

**2009-2016**: Adjunct Professor, Hellenic Open University, in the thematic area Computer Networks.

**1990-1992:** Member of Technical Staff, Bell Communications Research (Bellcore), Morristown, NJ, USA. Research on Optical CDMA and signal design to achieve capacity for a given channel.

**1988-1992**: Research Assistant and Teaching Assistant positions, Department of Electrical Engineering & Computer Science, του Massachusetts Institute of Technology (MIT), USA.

## OTHER POSITIONS AND COMMITTEES

- Member of the Board of the Computer Technology Institute (CTI) – Diophantos, appointed be the Minister of Education (Jan 2017-2021). CTI is a non-profit Research Organization, closely affiliated to academia. It is a financially and administratively independent research institute, currently under the supervision of the Hellenic Ministry of Education. CTI constitutes an integrated environment of scientific research, design and development of products and solutions. In continuous interaction with the academic community the national and European informatics industry, the international scientific community and the public sector, CTI has evolved to an internationally renowned research institution in Information and Network Technologies. More than 300 scientists, engineers and other staff support its activities and daily operation, while its annual budget exceeds 40 Million Euros.

- Chair of the Director's Board of the Greek School Network, GSN, (2004-2016). GSN connects more than 15000 schools and educational administrative offices and is the largest public network in Greece. About 120 engineers support GSN's operation.
- Member of the Directors' Council (ESYD) of the Computer Technology Institute (CTI). (2003-2021).
- Member of the Scientific Council of the Computer Technology Institute (CTI). (2004-2021)
- Member of European Research Council (ERC) Starting Grant panel on Computer Science and Informatics (PE6), 2019-2025.
- Member of Marie Skłodowska-Curie Actions (MSCA) review panel 2020 and 2022.
- Associate editor IEEE Transactions on Communications, in the area of Optical Networks, 2011-2014.
- Guest editor, IEEE Journal on Optical Communication Networks (JOCN) Special Issue on Low-Margin Optical Networks, Editors: Yvan Pointurier, Jean-Luc Augé, Martin Birk, Emmanouel Varvarigos, 2020.
- Guest Editor, Photonic Network Communications, Special Issue on ONDM, Editors: Anna Tzanakaki, Emmanouel Varvarigos, Raul Munoz, Reza Nejabati, Markos Anastasopoulos, Dec.2020.
- Member of the Editorial board of CTI press.
- Member of the Organizing Committee and the Evaluation Committee of the Business Plan Competition "i-Bank Innovation and Technology" organized by the National Bank of Greece, for the years: 2010-2011, 2011-2012, 2012-2013, 2013-2014, 2014-2015, 2015-2016, 2016-17, 2017-2018, 2018-2019, 2019-2020, 2020-2021, 2021-2022, 2022-2023.
- Member of the scientific and Evaluation Committee of E-nnovation (Panhellenic Student Business Plan Competition for Digital Innovation and New Enterpreneurship, www.ennovation.gr) for years 2012, 2014 and 2015.
- Chair of the Western Greece Go-digital Overseeing Committee (2003-2010).
- Member of the Board, Center of Business and Technological Development of Western Greece (2004-2009)
- Member of the Hellenic Grid Task Force (HellasGrid). (2003-2006)
- Member National Science Foundation task force on Broadband Networks (2000).
- Reviewer of the Small Business Innovation Research (SBIR) program for the National Science Foundation (NSF), 2000 and 2001.
- Reviewer of grant applications for the Natural Sciences and Engineering Research Council of Canada (NSERC).
- Reviewer of European Research Council (ERC) in FP7 Programme.
- Reviewer of EU projects in Horizon 2020 Programme and in ITN Programme.
- External Member of PhD committees at the University of Gent (Belgium), UPC (Spain), University of Cyprus (Cyprus), KTH (Sweden)
- Served in many academic committees at NTUA, Univ. of Patras and UCSB
- Member of the Technical Chamber of Greece and of IEEE.

**CONFERENCE/WORKSHOP COMMITTEES**

- **Organizer:**
  - General Co-Chair (with Prof. Anna Tzanakaki) of the 23rd Conference of Optical Networking Design and Modelling, ONDM 2019, May 13-16 2019, Athens, Greece
  - Co-Chair (with Prof. Nikos Pleros) of the Workshop on Optical Intra- and Inter- Data Center Networks, held in conjuction with ONDM 2019, Athens
  - Co-Chair (with Prof. Josep Solé-Pareta) of the Workshop on All-Optical Routing (WAOR), ICTON 2018, Bucharest

- o Co-Chair (with Prof. Josep Solé-Pareta) of the Workshop on All-Optical Routing (WAOR), ICTON 2017, Girona
- o Organizing Committee, "4th Optical Interconnect in Data Centers Symposium", ECOC 2016, Dussedorf, Sept 2016.
- o Co-organizer of Workshop on "ICT -Based Solutions for the Smart Energy Grid", held in conjuction with IEEE CAMAD, Sep. 2015, Guildford, UK.
- o Co-organizer of Workshop on "Smart Energy Grid: Theory, ICT Technologies and Novel Business Models", held in conjuction with IEEE CAMAD, Dec. 2014, Athens, Greece.
- o Organizer of Workshop on "IPv6 for innovative government and public services", April 21, 2015, Athens.
- o Co-organizer, "1$^{st}$ Workshop on Optical Interconnect in Data Centers", Berlin, March 2014.
- o Co-organizer, "2nd Optical Interconnect in Data Centers Symposium", ECOC 2014, Cannes, Sept 2014.
- o Co-organizer, "3rd Optical Interconnect in Data Centers Symposium", ECOC 2015, Valencia, Sept 2015.
- o Organizer of session on "Projects and Demos on Government Services", egov2014 Summer School, Samos, Thu July 3, 2014.
- o Co-Chair, Workshop on "High-performance networks and communications", Europar 2012.
- o Co-chair, Workshop on "Cross-layer Algorithms and Protocols for Optical Networks, Broadnets 2010.
- o Workshops chair, Gridnets 2009.
- o Chair, Workshop on "Internet Safety", Greek School Network, Patras, 2009
- o Co-chair, Workshop on "Communication Networks", Santa Barbara, 1998.
- o Chair, Workshop on "Broadband Networks: A luxury or a survival requirement for the Greek School Network?", MONEY SHOW 2005.

- **Program Committee member (more than 130 TPC):**

  - ➤ IEEE Global Communications Conference (Globecom): Optical Networks and Systems Symposium (GC'10 – ONS, GC'11 – ONS), - Future Optical Networks (GC'12 - FON), Communication QoS, Reliability and Modeling (GC'17 - CQRM), GC'17 Workshops - LPWA4IoT, IEEE Globecom 2019 CQRM
  - ➤ IEEE International Conference on Communications (ICC 2014, ICC 2005 Information Theory, ICC 2008 Optical Networks and Systems, ICC 2017 Optical Networks and Systems Symposium, ICC 2017 Communications QoS, Reliability, and Modeling Symposium (CQRM)
  - ➤ Intl Conference on Optical Network Design and Modelling (ONDM 2014, ONDM 2015, ONDM 2016, ONDM 2017, ONDM 2018, ONDM 2019)
  - ➤ ACM Intl Workshop on Mobility Management and Wireless Access (MobiWac2004, MobiWac2005, MobiWac2006, MobiWac2007, MobiWac2008, MobiWac2009, MobiWac2010, MobiWac2011, MobiWac2012, MobiWac2013, MobiWac2014, MobiWac2015, MobiWac2016, MobiWac2017, MobiWac2018, MobiWac2019)
  - ➤ IEEE Intl Symposium on Personal, Indoor and Mobile Radio Communications (PIMRC 2008, PIMRC 2011, PIMRC 2013, PIMRC 2016, PIMRC 2017)
  - ➤ IEEE International Workshop on Computer Aided Modeling and Design of Communication Links and Networks (CAMAD 2014, CAMAD 2015, CAMAD 2016, CAMAD 2017, CAMAD 2018, CAMAD 2019)
  - ➤ Panhellenic Conference on Informatics (PCI'2007, 2011, 2012, 2013, 2014, 2015, 2016, 2017, 2018, 2019)

- ACM-IEEE International Symposium on Modeling, Analysis and Simulation of Wireless and Mobile Systems (MSWiM 2007, MSWiM 2008, MSWiM 2009, MSWiM 2010, MSWiM 2011, MSWiM 2012, MSWiM 2013, MSWiM 2014)
- IEEE International Conference on Wireless and Mobile Computing, Networking and Communications (WiMob'2008, WiMob'2010, WiMob'2011, WiMob'2012)
- IEEE INFOCOM 2001
- Intl Conference on Wireless Information Networks and Systems (WINSYS 2006, WINSYS 2007, WINSYS 2008)
- Intl Conference on e-Business and Telecommunication Networks (ICETE 2005, ICETE 2006)
- Fifteenth International Conference on Networks (ICN 2009, ICN 2010, ICN 2011, ICN 2015, ICN 2016)
- IEEEWorkshop on High Performance Switching and Routing (HPSR 2004),
- 2nd Symposium on Photonics, Networking and Computing (2003)
- European Wireless (EW 2006, EW 2007)
- IFIP Conference on Artificial Intelligence Applications & Innovations (AIAI 2006)
- IADIS Intl Conference e-Commerce (e-commerce 2005, e-commerce 2006, e-commerce 2008, e-commerce 2011, e-commerce 2012, e-commerce 2013, EC 2014, EC2015)
- ALGOSENSORS 2006
- IEEE Wireless Communications and Networking Conference (WCNC 2007)
- Intl Conference on Late Advances in Networks (ICLAN'2007, ICLAN'2008)
- Intl Workshop on High Performance Grid Networks (HPGN 2008)
- IADIS Intl Conference on e-learning (eL2008, eL2011, eL2012, eL2013)
- eMobility Technology Platform Working Group
- Location-based services (LBS) and applications (in conjuction with ICPP 09),
- International Conference on Telecommunications (ICT 2011, ICT 2017)
- IEEE 73rd Vehicular Technology Conference, track on Ad-Hoc and Sensor Networks (VTC2011)
- IEEE International Symposium on Computer Communications (ISCC 2011, ISCC 2013, ISCC 2014, ISCC 2015, ISCC 2016, ISCC 2017, ISCC 2023)
- EuroMPI 2011,
- 7th FTRA Intl Conference on Future Information Technology (FutureTech 2012),
- 8th Advanced International Conference on Telecommunications (AICT 2012),
- 8th International Conference on Broadband Communications, Networks, and Systems (BROADNETS 2012)
- IEEE Intl Conference on Photonics (ICP2012, ICP 2014, ICP2013, ICP 2016)
- Intl Conference on 3D Converged IT and Optical Communications (3DOC 2012)
- The Eighth International Conference on Digital Society (ICDS 2014, 2015)
- Intl Conference on Mobile, Hybrid, and On-line Learning (eLmL 2014, 2015)
- IEEE Region 10 Symposium (2014 IEEE TENSYMP)
- Asia Pacific Conference on Wireless and Mobile (APWiMob 2014, APWiMob 2015, APWiMob 2015)
- 10th Intl Conference on Wireless and Mobile Communications (ICWMC 2014),
- Intl Workshop on Internet of Smart objects: Computing, Communication and Management (CCMIoS'14),
- Workshop on Systems and Virtualization Management (SVM 2014)
- 9th Intl Conference on Systems and Networks Communications (ICSNC 2014),
- Intl Conference on Telecommunications and Multimedia (TEMU 2014, TEMU 2016)
- IEEE Intl Conference on Engineering Education (ICEED2014, ICEED 2016),
- IEEE Intl Conference on Signal Processing, Informatics, Communication and Energy Systems (IEEE SPICES 2015)
- IEEE Intl Conference on Advances in Computing, Communications and Informatics (ICACCI-2014, ICACCI-2015, ICACCI-2016)

- ➢ Intl Conference on Computing in Mechanical Engineering (ICCME-2015)
- ➢ International Conference on Control, Electronics, Renewable Energy, and Communications (ICCEREC 2015, ICCEREC 2016)
- ➢ 3rd International Conferences on Computer Graphics, Visualization, Computer Vision, and Game Technology 2015 (VisioGame 2015)
- ➢ IEEE Wireless Communications and Networking Conference (IEEE WCNC 2016 - PHY Track)
- ➢ 2016 International Conference on Education (ICOED'16)
- ➢ First International Conference on Advances in Computation, Communications and Services (ACCSE 2016)
- ➢ International Conference on Telecommunications (ICT 2016)
- ➢ Intl Symposium on Security in Computing and Communications (SSCC'16)
- ➢ 5th IEEE International Conference on Communication, Networks and Satellite (IEEE COMNETSAT 2016)
- ➢ IEEE Workshop on Internet of Things (WIoT 2016) (held in conjunction with t41st IEEE LCN 2016, Nov. 7-10, 2016)
- ➢ International Conference on Control, Electronics, Renewable Energy and Communications (ICCEREC 2016)
- ➢ Intl Conference on Cloud Computing and Applications (CCA'17), Rome, Italy
- ➢ Second International Conference on Advances in Computation, Communications and Services (ACCSE 2017), June 25 - 29, 2017- Venice, Italy
- ➢ IEEE Intl Conference on Communication, Networks and Satellite (IEEE COMNETSAT 2017)
- ➢ IEEE 9th International Conference on Engineering Education (ICEED2017)
- ➢ IEEE Intl Workshop on Signal Processing Advances in Wireless Communication (SPAWC 2018, SPAWC 2019)
- ➢ Symposium on Wireless Sensor Technologies and Applications (WSTA 2018) co-affiliated with 6th International Conference on Computing, Communications and Informatics (ICACCI-2018)
- ➢ Global Information Infrastructure and Networking Symposium (GIIS 2018)
- ➢ IEEE Wireless Communications and Networking Conference (IEEE WCNC 2019)
- ➢ 2nd IEEE Middle East and North Africa Communications Conference IEEE MENACOMM'19)
- ➢ 26th IEEE Symposium on Computers and Communications (ISCC 2021)
- ➢ International Conference on Industry 4.0, Artificial Intelligence, and Communications Technology (IAICT 2021, 2022, 2023)
- ➢ IEEE Conference on Standards for Communications & Networking (CSCN 2022, CSCN 2023)
- ➢ Global Information Infrastructure and Networking Symposium (GIIS 2022),Argostoli, Kefalonia, Greece during September 26-28, 2022
- ➢ 2023 IEEE International Conference on Internet of Things and Intelligence Systems (IoTaIS'2023)

## AWARDS-DISTINCTIONS

- **IEEE CloudNet 2021 best innovative paper award** (IEEE International Conference on Cloud Networking)**,** for the paper "Secured Distributed Storage Resource Allocation on Cloud-Edge Infrastructures", co-authored by Konstantinos Kontodimas, Polyzois Soumplis, Aristotelis Kretsis, Panagiotis Kokkinos, Emmanouel Varvarigos, Nov. 2021.
- **Best paper award** in CSNDSP2022 for the paper K. Mitropoulou, P. Kokkinos, P. Soumplis, E. Varvarigos, Detect Resource Related Events in a Cloud-Edge Infrastructure Using Knowledge Graph Embeddings and Machine Learning,

- **2014 JLT Best Paper Award** by the Editorial Board and the Steering Committee of the IEEE/OSA Journal of Lightwave Technology, for the 2011 JLT paper "Elastic Bandwidth Allocation in Flexible OFDM-Based Optical Networks", co-authored by K. Christodoulopoulos, I. Tomkos and E. Varvarigos.
- **Best paper award** in the 9th International Conference on Service Systems and Service Management (ICSSSM'12), Sanghai, China, July 2-4, 2012, for the paper "Considerations for successful enterprise information systems deployment", co-authored by M. Kalochristiannakis, M. Paraskevas, E. Varvarigos.
- Optical Switching and Networking journal, **Top Cited Article** 2005-2010 award for the paper **"**A new Burst Assembly Scheme based on the Average Packet Delay and its Performance for TCP Traffic", co-authored by K. Christodoulopoulos, E. Varvarigos and K. Vlachos, 2010.
- **Best Poster Award** in the 3rd IEEE International Conference on e-Science (e-Science 2007) for the paper "Joint Communication and Computation Task Scheduling in Grids", co-authored by K. Christodoulopoulos and E. Varvarigos.
- **8 invited papers** in journals and **29 invited papers** in conferences
- 1st **National Prize in Mathematics** (1983); participation in the Greek national team for the Mathematical Olympiad (1983).
- **Vinton Hayes Fellowship**, MIT, 1988
- **Bodosakis Foundation Award** (1988-1992)
- Panhepirotic Foundation of US Canada and Australia Award (1991)
- **NSF Research Initiation Award** (1993), for proposal "A Library of Prototype Tasks for Parallel Computing"
- State Scholarship Foundation awards, for every year from 1983 to 1988, Greece

## INVITED TALKS

### Keynote/Tutorial talks

- Tutorial invited talk on "Resource Orchestration in Support of Edge Computing in Optical Networks" at the European Conference on OpticalCommunications (ECOC 2022), Basel, Switzerland, Sept. 2022.
- Tutorial invited talk on 'Self-monitored, self-adjusted optical network' at the 23rd Optical Network Design and Modeling (ONDM), Athens, Greece, May 2019.
- Tutorial invited talk on 'An introduction to routing and wavelength assignment algorithms for fixed and flexgrid' at the Optical Fiber Communication Conference and Exposition (OFC)/National Fiber Optic Engineers Conference, Anaheim, USA, March 2013.
- Keynote Speaker, Balkan Summit of Young Scientists, Thessaloniki, Dec. 2010. Title: Energy-Aware ICT Infrastructures.
- Keynote Speaker, Energy considerations of the ICT Sector, 5th Greek-Italian FITCE workshop on Trends in ICT: Bridging Technologies and Advanced Services, 12 Oct 2012.

### Invited talks at international conferences

1. May 17, 2018. Invited Talk at the 22th Symposium for Optical Network Design and Modelling (ONDM 2018), Dublin, Ireland. Title: Resource    Allocation in Slotted Optical Data Center Networks
2. July 2018, in 20th International Conference on Transparent Optical Networks (ICTON 2018), Bucharest, Romania. Title: An Advanced Planning Tool for Elastic Optical Networks with Low Margins

3. September 19, 2017. Invited Talk at the 5th Symposium for Optical Interconnect in Data Centres, co-located with ECOC 2017 in Gothenburg, Sweden. Title: The H2020 NEPHELE project
4. September 14-15, 2017. Invited Talk at the Special ECOC 2017 Symposium at Technical University of Denmark, Copenhagen, Denmark. Title: The ORCHESTRA Self-configurable Network based on Optical Performance Monitoring
5. July 2017, in ICTON 2017. Title: Resource Partitioning in the NEPHELE Datacentre Interconnect
6. July 2017, in ICTON 2017. Title: Improving QoT estimation accuracy through active monitoring, 19th International Conference on Transparent Optical Networks
7. July 2016, in ICTON 2016. Title: An Emulation Environment for SDN Enabled Flexible IP/Optical Networks
8. July 2016, in ICTON 2016. Title: Bandwidth Allocation in the NEPHELE Hybrid Optical Interconnect
9. July 2015 in ICTON 2015, Budapest. Title: ORCHESTRA- Optical performance monitoring enabling flexible networking,
10. September 3, 2016, 55th FITCE Europe Congress, Athens, "TOWARDS A SMART INTERCONNECTED SOCIETY". Title: Planning, Management and Optimization of Optical Networks
11. Feb. 2014 in ICNC 2014, Honolulu, USA, "Algorithmic Challenges in Flexible Optical Networks"
12. "IPv6 in the Greek School Network and Energy-related Pilot Applications", January 23-24, 2013, IPv6@Gov Workshop - Brussels
13. "Topologies and Optical Interconnect Layouts for Data Centers", March 19, 2014, 1st Workshop on Optical Interconnect in Data Centers, Berlin.
14. "Energy Efficiency in School Networks with IPv6", May 23, 2014, IPv6-Kongress 2014, Frankfurt
15. "Data Center Architectures and Topologies", June 3, 2014, in Summer School on Optical Interconnects, Thessaloniki,
16. "IPv6 upgrade of Energy Efficiency in School Networks", July 1, 2014, Samos 2014 Summit on ICT-enabled Governance, Samos,
17. "e-Democracy in the 21st Century through social networks mobile services (PERIKLIS project)", July 3, 2014, 2014 Summer School on ICT-enabled Governance, Samos,
18. "Asymmetric Passive Optical Network for xDSL and FTTH Access, 17th Panhellenic Conference on Informatics, Sept. 2013.
19. "Optical Network Planning and Operation tools", Cartagena, Spain, ICTON, June 2013.
20. "Eco-labeling Greek schools for energy efficiency over IPv6, PCI 2012, special session on "Real World Internet / Internet of things".
21. "Static and dynamic spectrum allocation in flexible optical networks", ICTON 2012.
22. "Planning mixed-line-rate WDM transport networks", ICTON 2011.
23. "Algorithmic aspects of optical network design", ONDM 2011.
24. "A comparison of offline impairment aware routing and wavelength assignment approaches", NOC2009.
25. "Cross-layer RWA in WDM networks: is the added complexity useful or a burden?", ICTON 2009.
26. "Routing and scheduling in grids", ICTON 2008.
27. "Jitter-based analysis and discussion of burst assembly algorithms", BROADNETS 2006.

28. "QoS Guarantees for IP over WDM Burst Switching", 39th Annual Allerton Conference on Communicating, Control, and Computing, University of Illinois, Urbana, Oct. 2001.
29. "Multicost Routing in Max-Min Fair Networks", 38th Allerton Conference on Communicating, Control, and Computing, Oct. 2000.
30. "The lambda-scheduler: A multiwavelength scheduling switch", 37th Annual Allerton Confe. on Communication, Control, and Computing, Sept. 1999.
31. "A dynamic scheduling communication protocol and its analysis for hypercubes", 34th Annual Allerton Confe. on Communication, Control, and Computing, Oct. 1996.
32. "Routing schemes for multiple random broadcasts in arbitrary network topologies", 33rd Annual Allerton Confe. on Communication, Control, and Computing, Oct. 1995.

**Invited talks at Universities and the Industry (partial list)**

- May 1990, Thinking Machines Corporation, Boston, USA
  Title: Communication Algorithm for Isotropic Tasks in Hypercubes
- Dec. 1991, IBM, Endicott, USA
  Title: Static and Dynamic Communication in Distributed Systems
- Jan. 1992, Bell Labs, Murray Hill. USA
  Title: Static and Dynamic Communication in Distributed Systems
- Jan. 1992, Bell Labs, Holbdel, USA
  Title: Static and Dynamic Communication in Distributed Systems
- Jan. 1992, Bellcore, Morristown, USA
  Title: Static and Dynamic Communication in Distributed Systems
- Feb. 1992, IBM TJ Watson Research Center, USA
  Title: Static and Dynamic Communication in Distributed Systems
- Feb. 1992, Columbia University, USA
  Title: Communication Aspects of Distributed Computation
- Feb. 1992, University of Detroit, USA
  Title: Communication Aspects of Distributed Computation
- March 1992, UC Santa Barbara, USA
  Title: Communication Aspects of Distributed Computation
- March 1992, UCLA, USA
  Title: Communication Aspects of Distributed Computation
- March 1992, University of Arizona, Tuscon, USA
  Title: Communication Aspects of Distributed Computation
- April 1992, University of Minnesota, USA
  Title: Communication Aspects of Distributed Computation
- Oct. 1995, UC San Diego, USA
  Title: Dynamic Broadcasting in Data Networks
- March 1997, UC Berkeley, USA
  Title: Efficient Interconnection Networks for Parallel Computation
- Feb. 1998, UC Berkeley, PATH, USA
  Title: Wireless Networks for Intelligent Vehicular Systems
- Feb. 1998, DARPA, Washington DC,
  Title: New Architectures for Wireless Tactical Networks
- Feb. 1998, Illgen Simulation Technologies, CA, USA
  Title: Estimating GPS Availability for the Free Flight Concept
- Sept. 1998, TU Delft, Holland
  Title: Efficient Control Protocols for High Speed Networks
- June 1998, University of Patras, Dept. of Electrical Engineering
  Title: Communication Algorithms for General Interconnection Topologies
- June 1999, Bell Labs, Holbdel, USA
  Title: The Thunder and Lighting Network: architectures and protocols

- June 1999, Bell Labs, Morristown, USA
  Title: The Thunder and Lighting Network: architectures and protocols
- July 2000, Tellabs Research Center, Boston, USA
  Title: Burst Switching in All-Optical Networks
- Oct. 2001, Illotron Technologies, Essex, UK
  Title: Efficient Routing and Wavelength Assignment in Optical Networks.
- Oct. 2003, Athens Institute of Technology, Athens, Greece
  Title: Optical Packet Switch Architectures
- Jan. 2006, "IPv6 Convergence Forum", Vienna.
  Title: Greek School's IPV6 network
- Aug. 2006, Communication Networks and Complexity workshop, Sounio, Greece
  Title: Multicost routing in general networks, and its specialization to
  max-min fair share, optical burst switched and ad hoc networks.
- January 23-24, 2013, IPv6@Gov Workshop  - Brussels
  Title: IPv6 in the Greek School Network and Energy-related Pilot Applications
- March 2013, University of California, Davis
  Title: Algorithms for Spectrum-Flexible Networks.
- Dec. 13, 2013, Municipality of Amaroussion
  Title: Energy metering services for schools and other public buildings
- Feb 24, 2021, 3rd ONFIRE Symposium, Joint fiber wireless resource allocation to support efficient cell free operation

## Invited Talks at national workshops

- Member of panel on Grid Computing, Comdex, Athens, Dec. 2004
- Workshop on grid computing, organized by the National Technical University of Athens, Nov. 2004
  Title: «The Potential of Grid Computing in the Greek School Network»
- Workshop on «Current Trends in Telecommunications and Information Technologies», organized by the Technical Chamber of Greece
  Title: «Greek School Network: the critical bet of going broadband», June 2006,
- July 2006, Workshop «Consumers and Youth, Problems and Proposals».  Center of Civilization, Municipality of Athens
  Title: «The use of the Internet by the youth: state of things and planning on the way to an Open Information Society»

## SUPERVISOR OF COMPLETED PhD THESES

1. Chi-Hsiang Yeh (1998), "Efficient low-degree interconnection networks for parallel processing: topologies, algorithms, vlsi layouts, and fault tolerance", UCSB PhD; now Associate Professor at Queens University, Canada

2. Vishal Sharma (1998), "Efficient Communication Protocols and Performance Analysis for Gigabit Networks", UCSB PhD; now Associate Professor at IIT Bombay, India, and founder and CEO of Metanoia Co.

3. Jonathan Lang (1999), "Architectures and Protocols for All-Optical Networks", UCSB PhD; now Chief Technical Officer at Sonos, Inc

4. Ayan Banerjee (1999), "Dynamic Communication Protocols and Performance Analysis on Wireline and Wireless Networks", UCSB PhD; now at CISCO

5. Christos Papageorgiou (2008), "Multicost Routing in Wireless Ad Hoc Networks", University of Patras, Greece; now at ByteMobile and adjunct assistant professor at

the University of Patras (awarded an Excellence Post-doc Fellowship from the General Secretariat of Research and Technology in 2012)

6. Kostas Christodoulopoulos (2009), "Routing and Capacity Allocation in Optical Networks", University of Patras, Greece; joined IBM Dublin, Ireland; now at Nokia-Alcatel Bell Labs, Germany

7. Panagiotis Kokkinos (2010), "Scheduling and Routing in Grid Networks and Data Networks", University of Patras, Greece; now assistant professor at the University of Peloponese (awarded an Excellence Post-doc Fellowship from the General Secretariat of Research and Technology in 2011)

8. Konstantinos Manousakis (2011), "Routing Wavelength Assignment and Rate Allocation in Optical Networks with Physical and Other Impairments", University of Patras, Greece; now at the University of Cyprus (Excellent Reseasearcher awards from the Cypriot government in 2017)

9. Michalis Kalochristianakis (March 2012), "A Remote Management Service tool for the Greek School Networkv and Development of OpenRSM open source platform for the integrated remote management of systems", University of Patras, Greece; now Adjunct Assistant Professor at Technical Education Institute of Crete.

10. Aristotelis Kretsis (February 2014), "Resource Management in Grid and Cloud Computing", University of Patras, Greece; now at NTUA

11. Vassilis Gkamas (December 2015), "Statistical Analysis and Job Modelling in Grid Networks and Multilayer Planning of IP over Spectrum-Flexible Optical Networks, Dept. of Computer Engineering and Informatics, University of Patras, Greece; now at CTI.

12. Ilias Gravalos (April 2016), "Fair Resource Management Protocols for Passive Optical Networks", Dept. of Computer Engineering and Informatics, University of Patras, Greece; now in Nokia-Siemens.

13. Apostolis Siokis (July 2017), Architectures and Communication Algorithms for Optical Interconnects, Dept. of Computer Engineering and Informatics, University of Patras, Greece.

14. Polyzois Soumplis (September 2017), Routing and Spectrum Algorithms in Elastic Optical Networks, Dept. of Computer Engineering and Informatics, University of Patras, Greece; now at NTUA.

15. Ioannis Mamounakis (April 2019), Design development and evaluation on decision making algorithms, based on innovative smart energy networks, Dept. of Computer Engineering and Informatics, University of Patras, Greece.

16. Georgios A. Tsaousoglou (March 2019), Demand Side Management in smart electricity networks: Algorithmic, Economic & Game-Theoretic aspects of active user participation, National Technical University of Athens, Greece.

17. Ippokratis Sartzetakis (May 2019), Routing Algorithms for Flexible Networks (Αλγοριθμοι Δρομολόγησης για Ευέλιγκτα Δίκτυα), National Technical University of Athens, Greece.

18. Konstantinos Steriotis (October 2022), Optimization and Game Theory Methods for Smart Energy Grids, National Technical University of Athens, Greece.

19. Konstantinos Kondodimas (Nov. 2023), Efficient Resource Allocation for Data Centers with Dynamic Optical Network Infrastructure, National Technical University of Athens, Greece. (Αποδοτική Ανάθεση Πόρων σε Κέντρα Δεδομένων με Δυναμικές Οπτικές Δικτυακές Υποδομές).

I have also supervised over 40 MSc theses at the University of Patras and UCSB, and over 100 undergraduate theses at the University of Patras and NTUA.

**SOFTWARE TOOLS DEVELOPED**

My research team has developed several software tools and we are currently exploring their commercial possibilities:

- NPOT: A Network Planning and Operation tool. Part of the tool also available over the Cloud as "Mantis" http://www.ceid.upatras.gr/faculty/manos/UK/CNL/tools.htm
- Monocrat: a propriatory remote systems and networks management tool http://www.monocrat.net
- OpenRSM: a lightweight integrated open source remote management solution http://sourceforge.net/projects/openrsm/ (more than 50.000 downloads)
- SUMO: a tool for the Analysis and Optimization of Amazon EC2 cloud instances

**TEACHING (USA, Greece, Australia)**

**Undergraduate Courses taught:**

- Computer Networks, Dept. of Electrical and Computer Engineering, National Technical University of Athens, Spring 2020.
- Optical Networking, Dept. of Electrical and Computer Engineering, National Technical University of Athens, Fall 2015, Fall 2016, Fall 2019, Fall 2020.
- Personalized and Wireless Communications, Dept. of Electrical and Computer Engineering, National Technical University of Athens, Spring 2019, Spring 2020.
- Multimedia Systems and Algorithms, Dept. of Electrical and Computer Engineering, National Technical University of Athens, Fall 2015, Fall 2016, Fall 2019, Fall 2020.
- Computer Networks, Dept. of Computer Engineering and Informatics, University of Patras, every year in 1999-2015.
- Computer Networks Laboratory Dept. of Computer Engineering and Informatics, University of Patras, every year in 1999-2015.
- Mobile Networks, Dept. of Computer Engineering and Informatics, University of Patras, every year in 2003-2015.
- Advanced Issues in Communication Networks, Dept. of Computer Engineering and Informatics, University of Patras, every year in 2000-2015.
- Analog and Digital Communications, University of California, Santa Barbara (UCSB), 3 semesters in the interval 1992-1999
- Probability Theory, University of California, Santa Barbara (UCSB), 3 semesters in the interval 1992-1999.
- Linear Systems, University of California, Santa Barbara (UCSB), 2 summer semesters.

**Graduate Courses taught:**

- High Speed Networks, Systems, and Optical Datacentres, Dept. of Electrical and Computer Engineering, National Technical University of Athens, Fall 2016, Fall 2019, Fall 2020
- High Speed Networks, Dept. of Computer Engineering and Informatics, University of Patras, every year in 2000-2016
- Data Networks, University of California, Santa Barbara (UCSB), every year in 1992-1999
- Digital Communications, University of California, Santa Barbara (UCSB), every year in 1995-1999

- Linear optimization and Complexity Theory, University of California, Santa Barbara (UCSB), every year 1992-1994
- Parallel and Distributed Systems, University of California, Santa Barbara (UCSB), every year in 1992-1994

For all of the units I have taught I developed the syllabus, the related material and for two of the units I wrote a text book (In Greek).


## RESEARCH GRANTS AND CONTRACTS (USA, EU, NATIONAL)

Principal or Co-Principal Investigator for the following research **programs in the USA**:

| Project | Organization | Role in Project | Period |
|---|---|---|---|
| National Science Foundation (NSF). A Library of Communication Protocols for Parallel Computation | Communication Networks Laboratory, University of California, Santa Barbara | Principal Investigator. Funding $100.000. | 1/9/93-1/9/97 |
| Department of Army Research (DARPA). Multidisciplinary Optical Switching Technologies Center. | Communication Networks Laboratory, University of California, Santa Barbara | Co-principal Investigator. Funding $5.000.000. | 1/1/98 - 1/1/99 |
| Department of Army Research (DARPA). The Thunder and Lightning Network. | Communication Networks Laboratory, University of California, Santa Barbara | Co-principal Investigator. Funding $7.000.000. | 1/1/98 – 31/8/99 |
| California Department of Transportation (CalTrans), Intelligent Vehicular Networks. | Communication Networks Laboratory, University of California, Santa Barbara | Principal Investigator. Funding $50.000. | 1/1/98 – 1/1/99 |
| Federal Aviation Authority (FAA), Use of Global Positioning Systems for the Free Flight Concept. | Communication Networks Laboratory, University of California, Santa Barbara | Principal Investigator. Funding $80.000. | 1/1/98 – 31/8/99 |

Participation in the following **EU-funded programs**, usually as Principal Investigator for my organization or as a Coordinator for the whole consortium, with an overall budget of **more than 5,700,000 Euros**:

| Project | Organization | Role in Project | Period |
|---|---|---|---|

| | | | |
|---|---|---|---|
| ALLEGRO: Agile uLtra Low EnerGy secuRe netwOrks | Institute of Communication and Computer Systems (ICCS/NTUA) | Horizon 2020 project, Grant agreement ID: 101092766, activity: HORIZON-CL4-2022-DIGITAL-EMERGING-01-39 - Ultra low energy and secure networks (RIA). ICCS's funding: € 300.000. Total funding: € 11.829.201 Role: **Principal Investigator** for ICCS/NTUA. | January 1, 2023 - June 30, 2026 |
| SERRANO: Transparent Application Deployment in a Secure, Accelerated and Cognitive Cloud Continuum | Institute of Communication and Computer Systems (ICCS/NTUA) | Horizon project, H2020-101017168, activity: ICT-40-2020-RIA. ICCS's funding: € 550.000. Total funding: € 4.343.180€ Role: **Project Coordinator of the Consortium** and **Principal Investigator** for ICCS/NTUA. | Jan 1, 2021- Dec 31, 2023 |
| MARSAL: Machine Learning-based, Networking and Computing Infrastructure Resource Management of 5G and beyond Intelligent Networks | Institute of Communication and Computer Systems (ICCS/NTUA) | Horizon project, H2020-101017171. ICCS's funding: € 456.000. Role: Principal Investigator for ICCS/NTUA. | Jan 1, 2021- Dec 3, 2023 |
| 5G-IANA: 5G Intelligent Automotive Network Applications | Institute of Communication and Computer Systems (ICCS/NTUA) | Horizon project, H2020-101016427. ICCS's funding: € 851.250. Activity: ICT-41-2020-IA Total funding: € 5,835,000 Role: Principal researcher for ICCS/NTUA. | Jan 1, 2021- Dec 31, 2023 |
| FLEXGRID: A novel mart grid architecture that facilitates high RES penetration through innovative markets towards efficient interaction between advanced electricity grid management and intelligent stakeholders | Institute of Communication and Computer Systems (ICCS/NTUA) | Horizon project, H2020-GA-863876. ICCS's funding: € 811.000. Total funding: € 5,835,000 Role: **Project Coordinator of the Consortium** and Principal Investigator for ICCS/NTUA. | Oct. 1, 2019- Sept. 30, 2022 |
| 5G integrated Fiber-Wireless networks exploiting existing photonic technologies for high-density SDN-programmable network architectures (5G-PHOS) | Institute of Communication and Computer Systems (ICCS/NTUA) | Horizon project, H2020-ICT-2016-2017 My ICCS group's funding: € 270.000. Role: Co-PI for ICCS/NTUA. | Sept 1, 2017- Aug 30, 2020 |
| A Gaming and Social Network Platform for Evolving Energy Markets' Operation and Educating Virtual Energy Communities (SOCIALENERGY ) | Institute of Communication and Computer Systems (ICCS/NTUA) | Horizon project, H2020-ICT-2016-2017, ICCS's funding: € 345.000. Role: **Project Coordinator of the Consortium** and Principal Investigator for CTI. | Jan 1, 2017- June 30, 2019 |

| Optical peRformanCe monitoring enabling dynamic networks using a Holistic cross-layEr, Self-configurable Truly flexible approach (ORCHESTRA) | Computer Technology Institute - Diofantos (CTI) | Horizon project, CTI's funding: € 391.750; Call ICT-06-2014: Smart optical and wireless network technologies. Role: **Project Coordinator of the Consortium** and Principal Investigator for CTI. | Feb 1, 2015-Jan 31, 2018 |
|---|---|---|---|
| eNd to End scalable and dynamically reconfigurable oPtical arcHitecture for application-awarE SDN cLoud datacentErs (NEPHELE) | Πανεπιστήμιο Πατρών | Horizon project, CTI's funding: €381.250; Call ICT-06-2014: Smart optical and wireless network technologies. Role: Principal Investigator for UPatras | Feb 1, 2015-Jan 31, 2018 |
| VIMSEN: Virtual Microgrids for Smart Energy Networks | Computer Technology Institute - Diofantos (CTI) | FP7 EU project, STREP project. Call Identifier: FP7-ICT-2013-11. CTI's funding: €478.000; Role: **Project Coordinator** of the Consortium and Principal Investigator for CTI. | Feb. 1, 2013-Jan 31, 2016 |
| Business Continuity as a Service '' (ORBIT) | Computer Technology Institute - Diofantos (CTI) | FP7 EU project, STREP project. Grant agreement no: 609828. CTI's funding: €158.000; Role: Principal Investigator for CTI. | Oct.2013-March 2016 |
| Industry-Driven Elastic and Adaptive Lambda Infrastructure for Service and Transport Networks (IDEALIST), *Integrated project* | University of Patras | FP7-ICT-2011-8, IP project. Univ. of Patras funding: €120.000; Role: Principal Investigator for University of Patras | 11/2012-10/2015 |
| Photonics for High-Performance, Low-Cost and Low-Energy Data Centers and High Performance Computing Systems: Terabit/s Optical Interconnect Technologies for On-Board, Board-to-Board and Rack-to-Rack data links (PhoxTrot), *Integrated project* | Computer Technology Institute - Diofantos (CTI) | FP7-ICT-2011-8, IP project. CTI's funding: €230.000; Role: Principal Investigator for CTI | 10/2012-9/2016 |
| Elastic Optical Networks (EO-NET) | Computer Technology Institute - Diofantos (CTI) | Industry contract from Alcatel Lucent CTI's funding: €15.000; Role: Principal Investigator for CTI. | 5/2012-4/2014 |
| Governments, enable and IPv6 (GEN6), *Integrated project* | Computer Technology Institute - Diofantos (CTI) | FP 7 - Project, European Commission CTI's funding: €80.000 Role: Principal Investigator for CTI | 10/2011-12/2014 |
| European Grid Initiative: Integrated Sustainable Pan-European Infrastructure for Researchers in Europe (EGI-InSPIRE), *Integrated project* | Computer Technology Institute - Diofantos (CTI) | FP 7 - Project, European Commission CTI's funding: €120.000 Role: Principal Investigator for CTI | 2010-2014 |
| European Middleware Initiative (EMI), *Integrated project* | Computer Technology | FP 7 - Project, European Commission CTI's funding: €80.000 Role: Principal Investigator for CTI | 2010-2013 |

| | Institute - Diofantos (CTI) | | |
|---|---|---|---|
| PHOSPHORUS: Lamda User Controlled Infrastructure for European Research, *Integrated project* | Research Academic Computer Technology Institute (CTI) | FP 7 - Project, European Commission. CTI's funding: €420.000 Role: Principal Investigator for CTI | 10/2006-04/2009 |
| DICONET: Dynamic Impairment Constraint Networking for Transparent Mesh Optical Networks, ICT *STREP* | Research Academic Computer Technology Institute (CTI) | FP 7 - Project, European Commission CTI's funding: €280.000 Role: Principal Investigator for CTI WP 4 leader (on Impairment-Aware RWA algorithms) | 1/1/2008-10/6/2010 |
| BONE: Building the Future Optical Network in Europe *NOE* | Research Academic Computer Technology Institute (CTI) | FP 7 - Project, European Commission. Network of Excellence on Optical Networking Role: Researcher | 1/1/2008-31/12/2009 |
| European Commission, IST, Enabling Grids for E-sciencE (EGEE-3). *Integrated project* | Research Academic Computer Technology Institute (CTI) | FP 7 - Project, European Commission. CTI's funding: €85.000. Role: Principal Investigator for CTI | 1/4/2008-1/4/2010 |
| European Commission, IST, Enabling Grids for E-sciencE (EGEE-2). *Integrated project* | Research Academic Computer Technology Institute (CTI) | European Commission. CTI's funding: €85.000 Role: Principal Investigator for CTI | 1/4/06-31/3/2008 |
| Multi - Functional Integrated Arrays of Interferometric Switches (MUFINS). *STREP* | Research Academic Computer Technology Institute (CTI) | European Commission, IST **Project Coordinator** of the Consortium and researcher. CTI's funding: €470.000. Total budget: €2.450.000. | 09/2004-09/2007 |
| Enabling Grids for E-sciencE (EGEE-1). *Integrated project* | Research Academic Computer Technology Institute (CTI) | European Commission, IST CTI's funding: €85.000 Role: Principal Investigator for CTI The Hellasgrid node in Patras was installed in Nov.2005, and consists of a cluster of 128 CPUs and storage 4TB. The node operates 24/7. CTI is also in charge of the Greek user grid helpdesk. | 1/2/2005-2007 |
| Grid Technologies Application Lab (Gridlab). *STREP* | ICCS/NTUA | European Commission, IST Role: Researcher on Resource management for Grids ICCS/NTUA funding: €253.000 | 1/1/01-31/3/03 |
| Large-Scale International IPv6 Pilot Network (6net)/ Subcontract: Introduction of IPv6 to the Greek School Network. *Integrated project*. | Research Academic Computer Technology Institute (CTI)/Network Technologies Sector | European Commission, IST Responsible for the work of the CTI/NTS team CTI/NTS funding: €80.000. | 1/9/04-31/6/05 |
| ePhoton/One, Optical Networks: Towards Bandwidth Manageability and Cost Efficiency *NOE* | Research Academic Computer Technology Institute (CTI) | European Commission, IST Network of Excellence on Optical Networking Technologies Role: Principal Investigator for CTI. CTI funding: €54.000. | 1/1/04-31/12/05 |
| Optical Networks: Towards Bandwidth Manageability and Cost Efficiency (ePhoton/One+) *NOE* | Research Academic Computer Technology Institute (CTI) | European Commission, IST, Network of Excellence on Optical Networking (continuation of ePhoton/One). Role: Principal Investigator for CTI CTI funding: €80. 000 | 1/1/06-1/1/08 |

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|---|---|---|---|
| DIGI-Q: Quality and On-line Confidence in SME-S E-business Processes *STREP* | Research Academic Computer Technology Institute (CTI) | Role: Principal Investigator for CTI | 1/4/03-31/8/04 |

Participation in **National R&D projects,** usually as Principal Investigator for my organization or as a Coordinator for the whole Consortium, with an overall budget of more than 1.800.000 Euros:

| Project | Organization | Role in the project | Period |
|---|---|---|---|
| ARMONIA: Auto-reconfigurable and integrated Metropolitan and Access Networks | National Technical University of Athens | General Secretariat of Research and Technology Role: **Consortium coordinator** and Principal Investigator for ICCS/NTUA NTUA funding: €180,000 | 2018-2020 |
| Energy Efficient Optical Network Planning and Operation | University of Patras | General Secretariat of Research and Technology Role: Principal Investigator for University of Patras UPatras funding: €155,000 | 2013-2014 |
| ENDECON: Energy Efficient Design of Communications Networks | University of Patras | General Secretariat of Research and Technology Role: Principal Investigator for University of Patras Leader of WP 2 | 3/2012-2/2015 |
| HellasHPC | Research Academic Computer Technology Institute (CTI) | General Secretariat of Research and Technology Role: Principal Investigator for CTI | 2010-2011 |
| PANDA – Asymmetric Passive Optical Network for xDSL and FTTH Access | Research Academic Computer Technology Institute (CTI) | General Secretariat of Research and Technology (SYNERGASIA action) Role: **Coordinator of the consortium** and Principal Investigator for CTI CTI funding: €193. 000 Total project funding: €1.500. 000 | 11/2012-11/2015 |
| PERICLES – E-Democracy in the 21st Century utilizing mobile social networking services | Research Academic Computer Technology Institute (CTI) | General Secretariat of Research and Technology (SYNERGASIA action) Role: Principal Investigator for CTI CTI funding: €70.400 | 2011-2013 |
| Design of the Cyprus School Network | Research Academic Computer Technology Institute (CTI) | Ministry of Education and Civilization Affairs, Cyprus CTI funding: €18.000 Role: Principal Investigator for CTI. The project delivered a design and an implementation plan for the development and the operation of the School Network of Cyprus | 1/6/2009-31/7/2009 |
| Development and Pilot Operation of a system for the remote | Research Academic Computer | Information Society, Call 87 Role: Principal Investigator for CTI. CTI funding: €270.000. | 12/2006-5/2007 |

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|---|---|---|---|
| management of computer and network systems in the public administration with the use of open source software | Technology Institute (CTI) | The project developed an open source tool, called OpenRSM, for Remote System Management. The functionalitites of the system include:<br>▪ Inventory-Asset management<br>▪ Software Distribution)<br>▪ Remote Control<br>▪ System Monitoring και Network Monitoring<br>The tool can be used for IT infrastructure management in any organization, without the use of expensive commercial tools | |
| Design of Novel Almost-All Optical Switch Architectures | Communication Networks Lab, University of Patras | Ministry of Education (PYTHAGORAS action)<br>CTI funding: €54.000.<br>Role: Principal Investigator for CTI | 01/2005-12/2007 |
| HERMES: Design and Development of an Innovative Integrated Embedded Bucket of User services | Research Academic Computer Technology Institute (CTI) | General Secretariat of Research and Technology (PABET action)<br>Role: Principal Investigator for CTI | 1/1/2005 – σήμερα |
| Routing and Switching in WDM networks using Burst Switching for QoS | Research Academic Computer Technology Institute (CTI) | General Secretariat of Research and Technology (PENED action)<br>Budget: €110.000.<br>Role: Principal Investigator for CTI<br>The work dealt with:<br>-multi-cost and QoS routing and<br>-reservation and connection establishment protocols | 10/10/05-10/10/08 |
| KETA: Center for Business and Technological Development of Western Greece | Research Academic Computer Technology Institute (CTI) | Ministry of Development<br>CTI funding: €240.000<br>Role: Principal Investigator for CTI and member of the board of directors of KETA, a company created to implement the project | 1/1/2005 - σήμερα |
| Program for the Enhancement of Computer Science Studies, ΕΠΕΑΕΚ II. | Dept. of Computer Engineering and Informatics, University of Patras | Responsible for the part of the project related to the CS undergraduate program. (budget €300.000). Implementation of a series of actions for the enhancement of the CS undergraduate curriculum and program of studies at the Dept. of Computer Engineering and Informatics of the University of Patras | 1/1/04-08 |
| Advanced Telematic Services for Primary Education | Research Academic Computer Technology Institute (CTI) | Information Society , call 72<br>Role: Principal Investigator.<br>Budget: €260.000. | 1/4/05-07 |
| EDUnet III: Advanced Telematic serices for the Greek School Network | Research Academic Computer Technology Institute (CTI) | Information Society | 1/7/04-06 |

| GRID – APP "Development of Pilot Applications for the exploitation of the National grid Infrastructure | Research Academic Computer Technology Institute (CTI) | General Secretariat of Research and Technology<br>Role: Principal Investigator for CTI.<br>CTI funding: €54.000.<br>Developed:<br>• A Web page ranking application on the Grid<br>• Job scheduling and resource management algorithms for grids | 1/1/2006-31/12/2006 |
|---|---|---|---|

## Research Publications

## Journals

1. G. Tsaousoglou, P. Ellinas, E. Varvarigos, Operating Peer-to-Peer Electricity Markets under Uncertainty via Learning-Based, Distributed Optimal Control, Applied Energy, Elsevier, vol. 343, pp. 121234, August 2023. DOI: 10.1016/j.apenergy.2023.121234

2. Kontodimas, K.; Soumplis, P.; Kretsis, A.; Kokkinos, P.; Fehér, M.; Lucani, D.; Varvarigos, E., "Secure Distributed Storage Orchestration on Heterogeneous Cloud-Edge Infrastructures", IEEE Transactions on Cloud Computing, June 2023.

3. A. Mitropolou, P. Kokkinos, P. Soumplis, E. Varvarigos, Anomaly Detection in the Edge-Cloud Continuum using Knowledge Graph Embedding and Machine Learning Mechanisms, Journal of Grid Computing, Vol. 22(1), pp. 1-22, March 2024.

4. P. Soumplis, G. Kontos, A. Kretsis, P. Kokkinos, E. Varvarigos, "Performance Optimization across the Edge-Cloud Continuum: A multi-Agent Rollout Approach for Cloud-Native Application Workload Placement", accepted in SN Computer Science.

5. I. Sartzetakis, E. Varvarigos, Network Tomography with partial topology knowledge and dynamic routing, Journal of Network and Systems Management, **31**, Article number: 73, Aug. 2023. https://doi.org/10.1007/s10922-023-09763-y

6. Barrachina-Muñoz, S.; Nikbakht, R.; Baranda, J.; Payaró, M.; Mangues-Bafalluy, J.; Kokkinos, P.; Soumplis, P.; Kretsis, A.; Varvarigos, E.; Deploying cloud-native experimental platforms for zero-touch management 5G and beyond networks, IET networks, Vol. 31(4), pp. 73-93, Oct. 2023.

7. I. Sartzetakis, P. Soumplis, P. Pantazopoulos, K. V. Katsaros, V. Sourlas, E. Varvarigos, Edge/Cloud Infinite-time Horizon Resource Allocation for Distributed Machine Learning and General Tasks, IEEE Trans. on Network and Service Management, Sept. 2023.

8. K. Steriotis, P. Makris, G. Tsaousoglou, N. Efthymiopoulos, E. Varvarigos, "Co-optimization of Distributed Renewable Energy and Storage Investment Decisions in a TSO-DSO Coordination Framework," IEEE Transactions on Power Systems, Oct. 2022.

9. A. Valkanis, G. A. Beletsioti, P. Nicopolitidis, G. Papadimitriou, E. Varvarigos, Efficiency and Fairness Improvement for Elastic Optical Networks using Reinforcement Learning-based Traffic Prediction, IEEE/OSA Journal Optical Communications and Networking (JOCN), Vol. 14(3), pp. 25-42, 2022.

10. G. Tsaousoglou, N. Efthymiopoulos, P. Makris, E. Varvarigos, Multistage Energy Management of Coordinated Smart Buildings: A Multiagent Markov Decision Process Approach, IEEE Transactions on Smart Grid, Vol. 13(4), pp. 2788-2797, July 2022. 10.1109/TSG.2022.3162915

11. W. Wang, K. Khalilpour, F. Karimi, D. Green, E. Varvarigos, Robustness analysis of electricity networks against failure or attack: the case of the Australian National Electricity Market (NEM), International Journal of Critical Infrastructure Protection, Elsevier, Volume 41, July 2023. https://doi.org/10.1016/j.ijcip.2023.100600

12. G. Tsaousoglou, P. Soumplis, N. Efthymiopoulos, K. Steriotis, A. Kretsis, P. Makris, P. Kokkinos, E. Varvarigos, "Demand Response as a Service: Clearing Multiple Distribution-Level Markets", IEEE Transactions on Cloud Computing (special issue), Vol. 10(1), pp. 82-96, 2021.

13. G. Tsaousoglou, K. Steriotis, E. Varvarigos, N. G. Paterakis "Flexibility Aggregation of Temporally Coupled Resources in Real Time Balancing Markets Using Machine Learning", IEEE Transactions on Industrial Informatics, pp. 4342- 4351, Dec. 2021.

14. F. Karimi, D. Green, P. Matous, M. Varvarigos, K. R. Khalilpour, Network of Networks: A Bibliometric Analysis, Physica D: Nonlinear Phenomena, Elsevier, Vol. 421, pp. 1-11, July 2021. doi.org/10.1016/j.physd.2021.132889

15. G. Tsaousoglou, K. Mitropoulou, K. Steriotis, N. G. Paterakis, P. Pinson, E. Varvarigos, "Managing Distributed Flexibility under Uncertainty by Combining Deep Learning with Duality", IEEE Transactions on Sustainable Energy, Vol. 12(4), pp. 2195- 2204, June 2021.

16. G. Tsaousoglou, K. Petsinis; P. Makris; I. Skoteinos; N. Efthymiopoulos; E. Varvarigos, A Shortage Pricing Mechanism for Capacity Remuneration and Simulation of Its Hypothetical Implementation in the Greek Balancing Market, Utilities Policy, Elsevier, Vol. 71, Aug 2021.

17. K. Steriotis, K. Šepetanc, H. Pandžić, P. Makris, N. Efthymiopoulos, K. Sboukis, E. Varvarigos, "Stacked Revenues Maximization of Distributed Battery Storage Units via Emerging Flexibility Markets", IEEE Transactions on Sustainable Energy, Vol. 13(1), pp. 464-478, Oct. 2021.

18. A. Khaksary, G. Tsaousoglou, P. Makris, K. Steriotis, N. Efthymiopoulos, E. Varvarigos, Sizing of Electric Vehicle Charging Stations with Smart Charging Capabilities and Quality of Service Requirements, Sustainable Cities and Society, Elsevier, July 2021, doi.org/10.1016/j.scs.2021.102872.

19. N. Efthymiopoulos, P. Makris, G. Tsaousoglou, K. Steriotis, D. Vergados, A. Khaksari, L. Herre, V. Lacort, G. Martinez, E. L. Lorente, R. Gehrcke, M. Bagherpour, G. Milzer, B. Pellerin, F. Farrukh, M. Thoma, T. Tadin, M.-I. Baka, C. Papadimitriou, A. Kyprianou, G. Georghiou, H. Pandzic, D. Badanjak, S. Chatzivasileiadis, E. M. Prat, M. Calin, T. Esterl, E. Varvarigos, FLEXGRID – A novel smart grid architecture that facilitates high-RES penetration through innovative flexibility markets towards efficient stakeholder interaction, Open Research Europe, vol. 1(128), Oct. 2021.

20. K. Steriotis, K. Smpoukis, N. Efthymiopoulos, G. Tsaousoglou, P. Makris, E. Varvarigos, Strategic and Network-Aware Bidding Policy for Electric Utilities through the Optimal Orchestration of a Virtual and Heterogeneous Flexibility Assets' Portfolio, Electric Power Systems Research, Vol. 184, July 2020.

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The impact factors of the journals (147/151) I have published in [82 IEEE journals, 30 Elsevier, 14 Springer, 9 Wiley, 4 IET, 3 MPDI, 1 ACM, 1 IEICE]:

1. IEEE/OSA Journal of Lightwave Technology (**impact 4.162**): 18 papers (1 got a **JLT best paper award**)
2. IEEE/OSA Journal Optical Communications and Networking (**impact 3.984**): 19 papers
3. IEEE/ACM Transactions on Networking (**impact 3.376**): 7 papers
4. IEEE Transactions on Parallel and Distributed Systems (**impact 4.181**): 6 papers
5. IEEE Communications Magazine (**impact 10.435**): 6 papers
6. IEEE Transactions on Smart Grid (**impact 10.486**): 3 papers
7. IEEE Internet of Things (**impact 7.560**): 1 paper
8. IEEE Network (**impact 7.230**): 1 paper
9. IEEE Transactions on Computers (**impact 3.131**): 2 papers
10. IEEE Transactions on Sustainable Energy (**impact 7.44**): 2 papers
11. IEEE Journal on Selected Areas in Communications (**impact 9.302**): 1 paper
12. IEEE Transactions on Cybernetics (**impact 7.384**): 1 paper
13. IEEE Transactions on Cloud Computing (**impact 7.928**): 3 papers
14. IEEE Transactions on Industrial Informatics (**impact 12.22**): 1 paper
15. IEEE Transactions on Systems Man and Cybernetics Part-B (**impact 3.08**): 1 paper
16. IEEE Transactions on Network and Service Management (**impact 3.286**): 2 papers
17. IEEE Transactions on Power Systems (**impact 6.663**): 1 paper
18. IEEE Transactions on Education (**impact 2.274**): 1 paper
19. IEEE Photonics Technology Letters (**impact 2.553**): 1 paper
20. IEEE Access (**impact 4.098**): 3 papers
21. Future Generation Computer Systems, Elsevier (**impact 4.639**): 4 papers
22. Sustainable Energy, Grids and Networks (SEGAN), Elsevier (**impact 2.532**): 4 papers
23. Journal of Grid Computing, Springer (**impact 3.288**): 6 papers
24. Computer Networks, Elsevier (**impact 4.474**): 3 papers
25. Applied Energy, Elsevier (**impact 11.35**): 1 paper
26. Computer Communications, Elsevier (**impact 3.338**): 2 papers
27. ACM Computing Surveys (**impact 6.748**): 1 paper
28. Sustainable Cities and Society, Elsevier (**impact 5.2**): 1 paper
29. Ad Hoc Networks, Elsevier (**impact 3.490**): 1 paper
30. Electric Power Systems Research, Elsevier (**impact 3.022**): 2 papers
31. Optical Switching and Networking, Elsevier (**impact 2.786**): 4 papers
32. Parallel Computing, Elsevier (**impact 1.890**): 2 papers
33. Journal of Parallel and Distributed Computing, Elsevier (**impact 3.739**): 1 paper
34. Physica D: Nonlinear Phenomena, Elsevier (**impact 1.809**): 1 paper
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38. Energy Efficiency, Springer (**impact 2.574**): 1 paper
39. Journal of Modern Power Systems and Clean Energy, Springer (**impact 3.265**): 2 papers
40. International Journal of Critical Infrastructure Protection (**impact 2.865**): 1 paper
41. Energies, open access journal, MPDI (**impact 2.676**): 1 paper
42. Photonics, open access journal, MPDI (**impact 2.140**): 1 paper
43. Wireless Networks, Springer (**impact 2.405**): 1 paper
44. Telecommunication Systems, Springer (**impact 1.340**): 1 paper
45. Journal of Network and Systems Management, Springer (**impact 1.588**): 2 papers
46. Wireless Communications and Mobile Computing, Wiley (**impact 1.899**): 1 paper
47. Concurrency & Computation: Practice and Experience, Wiley (**impact 1.167**): 1 paper
48. International Journal of Network Management, Wiley (**impact 0.517**): 1 paper

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50. Transactions on Emerging Telecommunications Technologies, Wiley (**impact 1.535**): 1 paper
51. International Journal of Wireless Information Networks, Springer (**impact 1.583**): 1 paper
52. IET Optoelectronics (**impact 1.506**): 1 paper
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54. IET Networks (**impact 2.583**): 2 papers
55. Energy, Sustainability and Society, Springer (**impact 1.625**): 1 paper
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57. International Journal of Foundations of Computer Science (**impact 0.512**): 1 paper
58. Photonics open access journal, MPDI (**impact 2.140**): 1 paper
59. SN Computer Science (**impact 3.78**): 1 paper

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**LANGUAGES:** English, French, Greek
**REFERENCES:** Furnished upon request