

PERSONAL INFORMATION

Carlo Vallati

Researcher unique identifier(s): Researcher ID, J-9876-2014

Date of birth: 19/02/1983

Web Site: <http://www.iet.unipi.it/c.vallati/>

EDUCATION

PhD in Information Engineering

University of Pisa, Pisa, Italy

1 January 2009 - 24 May 2012

PhD thesis titled: “*Energy efficiency in next generation wireless networks: methodologies, solutions and algorithms*”

Master's Degree in Information Engineering

University of Pisa, Pisa, Italy

25 October 2005 - 28 February 2008

Final evaluation: 110/110 cum laude

M.S. Thesis titled: “*2^kr factorial analysis of power saving class I in IEEE802.16e*”

Bachelor's Degree in Information Engineering

University of Pisa, Pisa, Italy

1 September 2002 - 24 October 2005

Final evaluation: 110/110 cum laude

Bachelor Thesis titled: “*Realization of a driver for UHCI USB controller*”

CURRENT POSITION

Associate Professor

02 February 2022 – today

- Research in several areas, including Internet of Things and Cloud Computing
- Coordinator of the laboratory “Cloud Computing, Big Data and Cybersecurity”, created in the framework of the project “Crosslab”, funded by the Italian Ministry of University and Research
- *Supervisor* for several bachelor’s students and graduate students (both MSs and PhD)

Tenured Assistant Professor

02 February 2019 – 01 February 2022

- Research in several areas, including Internet of Things, Cloud Computing systems and wireless and sensor networks
- *Supervisor* for several bachelor’s students and graduate students (both MSs and PhD)

Assistant Professor

04 January 2016– 02 February 2019

- Research in the area of Industrial Internet of Things and Fog computing, focusing in particular on the study of Industrial Wireless Networks and mobility support in Edge/Fog computing platforms.

PREVIOUS POSITIONS

Postdoctoral researcher

Department of Information Engineering, University of Pisa, Pisa, Italy

2 February 2012 – 03 January 2016

- Research in the field of Internet of Things, focusing on architectural and infrastructural aspects, smart object integration and Quality of Service support for Machine-To-Machine communications
- Involved in *the EU founded project BETaaS*, Building the Environment for the Things as a Service, 7th framework program. Implementation *task leader* for the University of Pisa.
- Research in the field of wireless mesh networks
- Involved in a *research project founded by Fluidmesh Networks (Milan, Italy)* aimed at designing and testing solutions for dynamics frequency selection mechanisms to manage efficiently frequencies co-located with Class C radar systems. *Task leader* for the implementation Work Package

Doctoral student

Department of Information Engineering, University of Pisa, Pisa, Italy

1 January 2009 - 31 December 2011

- Research in the field of wireless mesh networks
- Research in a wide range of topics related with different wireless communications technologies: power-saving mechanisms, multimedia transmission, resource allocation, solutions to improve network reliability
- Research in the field of simulation reliability and data analysis automation

Research fellow

Department of Information Engineering, University of Pisa, Pisa, Italy

1 March 2008 - 31 December 2008

- Research in the field of real time and non-real time scheduling algorithms for IEEE 802.16e networks
- Involved in a *joint project with Nokia Siemens Network*

Intern

Istituto di informatica e telematica, National Research Council - C.N.R, Pisa, Italy

13 February 2006/ 11 July 2006

- *Project developer* for Data Defender, an application for data encryption for handheld and mobile devices

VISITING EXPERIENCE

Visiting Researcher

CReWMaN Lab directed by Prof. Sajal K. Das, Computer Science Department, Missouri University of Science and Technology, Rolla, Missouri, US

01 March 2017/ 24 March 2017

- Kick off a new joint research activity on the study of 6TiSCH networks for the future industrial internet of things

Visiting Researcher

InIT Cloud Computing Laboratory, Zurich University of Applied Sciences, Zurich, Switzerland

18 August 2015/ 10 September 2015

- *Investigation* of possible joint *collaboration activities* in the framework of the future H2020 calls, work on this MSCA proposal

Visiting Student

Network Research Group directed by Prof. Prasant Mohapatra, Computer science department, UC Davis, California, USA

15 September 2010 - 15 March 2011

- Research in the field of resource management in wireless mesh networks and multimedia transmission over LTE networks
- *Responsible for maintenance and upgrade* of QuRiNet, a 36-node outdoor wireless mesh network

FELLOWSHIPS AND AWARDS

- **2019**, *Best paper candidate*, IEEE SMARTCOMP 2019, “5th IEEE International Conference on Smart Computing (IEEE SMARTCOMP 2019)
- **2013**, *Fast-track award*, *Annual workshop of the Italian Group on Quantitative Methods in Informatics* (Infq 2013)
- **2011**, *Fast-track award*, *Annual workshop of the Italian Group on Quantitative Methods in Informatics* (Infq 2011)
- **2011**, *Best paper award*, International Symposium on Wireless Personal Multimedia Communications (WPMC 2011)
- **2010**, *Travel student award*, IEEE International Conference on Mobile Ad-hoc and Sensor Systems (MASS 2010)
- **2010**, *Spotlight paper* for the June issue, IEEE Transaction on Mobile Computing
- **2009 - 2011**, *Three-year grant* issued by the Italian ministry of education and the Tuscany region for the PhD program

ORGANISATION OF SCIENTIFIC MEETINGS

- **2023**, *Workshop co-chair* of the 21th International Conference on Pervasive Computing and Communications Conference, PerCom 2023, 13-17 March, Atlanta, USA
- **2022**, *General Vice-chair* of the 20th International Conference on Pervasive Computing and Communications Conference, PerCom 2022, 21-25 March, Pisa, Italy (moved as Virtual Event due to the COVID-19 pandemic)
- **2021**, *Track Co-Chair* of the 18th IEEE Consumer Communications & Networking Conference, CCNC 2021, 9-12 January 2021, Las Vegas, USA (moved as Virtual Event due to the COVID-19 pandemic)

- **2020**, *TPC Co-Chair* of the 6th IEEE International Conference on Smart Computing Systems, SMARTCOMP 2020, 14 September 2020, Bologna, Italy (moved as Virtual Event due to the COVID-19 pandemic)
- **2020**, Track-Chair of the 2nd International Conference on Industrial Electronics and Sustainable Energy Systems, IESES 2020, 1-3 September 2020, Cagliari, Sardegna, Italy
- **2020**, *Co-Chair* of the 9th International Workshop on Computing and Networking for IoT and Beyond, ComNet-IoT 2020, 4 January 2020, Kolkata, India
- **2019**, *TPC Co-Chair* of the 4rd IEEE SMARTCOMP Workshop on Smart Service Systems, SmartSys 2018, 12 June 2019, Washington, USA
- **2019**, *Co-Chair* of the 8th International Workshop on Computing and Networking for IoT and Beyond, ComNet-IoT 2019, 4 January 2019, Bangalore, India
- **2018**, *TPC Co-chair* of the Third IEEE SmartComp Workshop on Smart Service Systems, *SmartSys 2018*, Taormina, Italy
- **2017**, *Co-chair* of the Six IEEE WoWMoM Workshop on the Internet of Things: Smart Objects and Services, *IoT-SoS 2017*, Macau, China
- **2013**, *Vice-chair* of the Second IEEE WoWMoM Workshop on the Internet of Things: Smart Objects and Services, *IoT-SoS 2013*, Madrid, Spain
- **2011**, *Web Chair* for the 12th IEEE International Symposium on a World of Wireless, Mobile and Multimedia Networks, *WoWMoM 2011*, Lucca, Italy
- **2009**, *Local Organization Co-Chair* (with Dr. Daniele Migliorini) for the Fourth International Conference on Performance Evaluation Methodologies and Tools, *Valuetools 2009*, Pisa, Italy

- **2023**, *TPC member*, IEEE WoWMoM 2023, “24th IEEE International Symposium on a World of Wireless, Mobile and Multimedia Networks”, June 12 – 15, Boston, USA
- **2023**, *TPC member*, IEEE SMARTCOMP 2023, “9th IEEE International Conference on Smart Computing”, 26-30 June, 2023, Nashville, USA.
- **2023**, *TPC member*, ICNC 2023, “International Conference on Computing, Networking and Communications”, February 20-22, 2023, Honolulu, Hawaii, USA.
- **2022**, *TPC member*, IEEE WoWMoM 2022, “23th IEEE International Symposium on a World of Wireless, Mobile and Multimedia Networks”, June 14-17, Virtual Conference
- **2022**, *TPC member*, IEEE SMARTCOMP 2022, “8th IEEE International Conference on Smart Computing”, 20-24 June, 2022, Espoo, Finland.
- **2022**, *TPC member*, IEEE CCNC 2022, “IEEE Consumer Communications & Networking Conference”, 8-10 January 2022, Virtual Conference
- **2022**, *TPC member*, IEEE MASS 2022, “19th IEEE International Conference on Mobile Ad-Hoc and Smart Systems”, October 20-22, 2022, Denver, USA
- **2021**, *TPC member*, IEEE WoWMoM 2021, “22th IEEE International Symposium on a World of Wireless, Mobile and Multimedia Networks”, June 7-11, Virtual Conference
- **2021**, *TPC member*, IEEE MASS 2021, “18th IEEE International Conference on Mobile Ad-Hoc and Smart Systems”, October 4-7, 2021, Conferenza Virtuale
- **2021**, *TPC member*, IEEE SMARTCOMP 2021, “7th IEEE International Conference on Smart Computing”, 23-27 August, 2021, Virtual Conference.
- **2021**, *TPC member*, IEEE CCNC 2021, “IEEE Consumer Communications & Networking Conference”, 9-12 January 2021, Virtual Conference
- **2020**, *TPC member*, AD-HOC-NOW, “19th International Conference on Ad Hoc Networks and Wireless – AdHoc-Now”, October 19-21 2020, Virtual Conference
- **2020**, *TPC member*, IEEE MASS 2020, “17th IEEE International Conference on Mobile Ad-Hoc and Smart Systems”, December 10-13, 2020, Conferenza Virtuale
- **2020**, *TPC member*, IEEE WoWMoM 2020, “21th IEEE International Symposium on a World of Wireless, Mobile and Multimedia Networks”, August 31 – September 03, Virtual Conference
- **2020**, *TPC member*, IEEE CCNC 2020, “IEEE Consumer Communications & Networking Conference”, 10-13 January 2020, Las Vegas, USA
- **2019**, *TPC member*, ICDCN 2020, “International Conference on Distributed Computing and Communication Networks”, January 4-7 2020, Kolkata, India
- **2019**, *TPC member*, ICNC 2020, “International Conference on Computing, Networking and Communications”, February 17-20, 2019, Honolulu, Hawaii, USA.
- **2019**, *TPC member*, IEEE SMARTCOMP 2019, “5th IEEE International Conference on Smart Computing”, 12-14 June, 2019, Washington DC, USA.
- **2019**, *TPC member*, conferenza AD-HOC-NOW, “18th International Conference on Ad Hoc Networks and Wireless – AdHoc-Now”, October 1-3 2019, Lussemburgo

- **2019**, *TPC member*, ICDCN 2019, “International Conference on Distributed Computing and Communication Networks”, January 4-7 2019, Bangalore, India
- **2019**, *TPC member*, PerLS 2019, “3rd International Workshop on Pervasive Smart Living Spaces”, co-located with the conference IEEE PerCom, March 11-15 2019, Kyoto, Giappone
- **2019**, *TPC member*, IEEE WoWMoM 2019, “20th IEEE International Symposium on a World of Wireless, Mobile and Multimedia Networks”, June 10-12, 2019, Washington DC, USA.
- **2019**, *TPC member*, ICNC 2019, “International Conference on Computing, Networking and Communications”, February 18-21, 2019, Honolulu, Hawaii, USA.
- **2019**, *TPC member*, ICNC 2019, “International Conference on Computing, Networking and Communications”, February 18-21, 2019, Honolulu, Hawaii, USA.
- **2019**, *TPC member*, IFIP WWIC 2019, “7th International Conference on Wired/Wireless Internet Communications”, June 17-18, 2019, Bologna, Italia.
- **2019**, *TPC member*, IEEE ICDGS 2019, “39th IEEE International Conference on Distributed Computing Systems”, July 7-9, Dallas, Texas, USA.
- **2019**, *TPC member*, IEEE IGSC 2019, “10th international GREEN and sustainable computing conference”, October 21-24, 2019, Alexandria, VA, U.S.A.
- **2018**, *TPC member*, IEEE International Conference on Smart Computing, SMARTCOMP 2018, Taormina, Italy
- **2018**, *TPC member*, IEEE International Conference on Distributed Computing Systems, ICDCS 2018, Vienna, Austria
- **2018**, *TPC member*, International Symposium on a World of Wireless Mobile and Multimedia Networks, WoWMoM 2018, Chania, Greece
- **2018**, *TPC member*, The Second International Workshop on Pervasive Smart Living Spaces (PerCom), PerLS 2018, Athens, Greece
- **2018**, *TPC member*, International Conference on Embedded Wireless Systems and Networks, EWSN 2018, Madrid, Spain
- **2018**, *TPC member*, International Conference on Computing, Networking and Communications, ICNC 2018, Hawaii, USA
- **2017**, *TPC member*, International Symposium on a World of Wireless Mobile and Multimedia Networks, WoWMoM 2017, Macau, China
- **2017**, *TPC member*, Fifth International Conference on Advances in Computing, Communications and Informatics, ICACCI 2017, Karnataka, India
- **2017**, *TPC member*, The Seventh International Conference on Mobile Services, Resources, and Users, MOBILITY17, Venice, Italy
- **2017**, *TPC member*, The Eighth International Conference on Cloud Computing, GRIDs, and Virtualization, CLOUD COMPUTING 2017, Athens, Greece
- **2017**, *TPC member*, International Conference on Computer Applications & Technology, ICCAT 2017, Cairo, Egypt
- **2017**, *TPC member*, International Conference on Computing, Networking and Communications, ICNC 2017, Silicon Valley, USA
- **2016**, *TPC member*, Fifth International Conference on Advances in Computing, Communications and Informatics, ICACCI 2016, Jaipur, India
- **2016**, *TPC member*, World Symposium on Computer Applications and Research, GC-WOC 2016, Malaga, Spain
- **2016**, *TPC member*, International Conference on Computer Communication and Networks, ICCCN 2016, Waikoloa, Hawaii USA
- **2016**, *TPC member*, Global Summit on Computer and Information Technology, GSCIT 2016, Sousse, Tunisia
- **2016**, *TPC member*, International Conference on Future Network System and Security, FNSS 2016, Paris, France
- **2016**, *TPC member*, The Seventh International Conference on Cloud Computing, GRIDs, and Virtualization, CLOUD COMPUTING 2016, Rome, Italy
- **2016**, *TPC member*, International Conference on Computer Communication and Networks, ICCCN 2016, Waikoloa, Hawaii USA
- **2015**, *TPC member*, Forth International Conference on Advances in Computing, Communications and Informatics, ICACCI 2015, Kerala, India
- **2015**, *TPC Member*, Second International Symposium on Computer Vision and the Internet, VisioNet 2015, co-located with ICACCI 2015, Kerala, India
- **2015**, *TPC member*, Fourth International Conference on Advances in Vehicular Systems, Technologies and Applications, Vehicular 2015, St. Julians, Malta
- **2015**, *TPC member*, International Conference on Computer Applications & Technology, ICCAT 2015, Rome,

Italy

- **2015**, *TPC member*, World Symposium on Computer Applications and Research, WSCAR 2015, Rome, Italy
- **2014**, *TPC member*, The Third International Conference on Advances in Vehicular Systems, Technologies and Applications, Vehicular 2014, Seville, Spain
- **2014**, *TPC member*, The Third International Conference on Advances in Computing, Communications and Informatics, ICACCI 2014, Greater Noida, India
- **2014**, *TPC Member*, The First International Symposium on Computer Vision and the Internet, VisioNet 2014, co-located with ICACCI 2014, Greater Noida, India
- **2013**, *TPC member* of the 5th International Workshop on Hot Topics in Mesh Networking, IEEE HotMesh 2013, Madrid, Spain
- **2013**, *TPC member*, The Second International Conference on Advances in Vehicular Systems, Technologies and Applications, Vehicular 2013, Nice, France
- **2012**, *TPC member*, The First International Conference on Advances in Vehicular Systems, Technologies and Applications, Vehicular 2012, Venice, Italy

EDITORIAL BOARDS

- **2020-today**, *Ad Hoc Networks*, Elsevier
- **2018-today**, *Journal of Reliable Intelligent Environment*, Springer
- **2017-2022**, *Applied Sciences*, MDPI

GUEST EDITOR

- **2023 – 2024**, Special Issue ‘Industrial IoT networks to support future Cloud-to-Things applications’, journal “Ad Hoc Networks”, Elsevier
- **2020 – 2021**, Special Issue ‘Smart computing: Research trends and perspectives: Special Issue On Selected Papers from IEEE SMARTCOMP 2020’, journal “Pervasive and Mobile Computing”, Elsevier
- **2017 – 2018**, Special Issue “Reliability of Internet of Things: Smart Objects and Services”, Journal of Reliable Intelligent Environment, Springer

REFREE ACTIVITY

- **Reviewer** for the following journals: IEEE/ACM Transactions on Networking, IEEE Transactions on Mobile Computing, IEEE Internet of Things Journal, Pervasive and Mobile Computing, Computer Communications, Computer Networks (Elsevier), IEEE Wireless Communications Letters, Simulation Modelling Practice and Theory, Ad Hoc Networks, Journal of Engineering
- **Reviewer** for the following conferences: SMARTCOMP 2017, WF-IoT 2016, MSWiM'16, GC 2016, INFOCOM 2016, WF-IoT 2015, GC' 15 - Wireless Networks, MSWiM'15, EW2015, ICC'15 (01) SAC 4-IoT, IEEE WoWMoM 2015, IEEE SPICES 2015, MSWiM'14, ICSPCT 2014, IEEE WoWMoM 2014, INFOCOM'2014, WF-IoT 2014, GC13, MSWiM'13, SustainIT 2013, PIMRC'13, IEEE WoWMoM 2013, IEEE HotMESH 2013, INFOCOM'2013, GC12, IEEE WoWMoM 2012, ICC'12, INFOCOM'2012, GC'11, BWA 2010, GC10, ISDA 2010, PIMRC 2010, EW2010, WD'09, GC'09, PIMRC'09, HotMESH 2009, EW09

MEMBERSHIPS OF SCIENTIFIC SOCIETIES

- **2009 - 2012**, *IEEE Member*
- **2009 - today**, Member of the *Italian Group on Quantitative Methods in Informatics*, Infq

PROJECTS

- **2023 - 2024**, *SAFE: Study and development of a platform for workplace safety*. **Principal Investigator**. 46000 euro Funded by the University of Pisa via the PRA 2022-2023 open call.
- **2021 –2022**, *EdgeFlooding: Exploiting Edge computing for Real-Time Monitoring and Detection of Flash Floods*. **Principal Investigator**. 74120 euro Funded by the NGIatlantic initiative via the 3rd open call.
- **2022 – 2023**, *Smariers regional project Smart Railway Infrastructures: Efficiency, Reliability and Safety*, **Principal Investigator** of the University of Pisa research unit – subcontract of the research unit ISTI-CNR, 60000 euro funded by Istituto di Informatica e Telematica del Consiglio Nazionale delle Ricerche (CNR-IIT)
- **2019 – 2020**, *StingRay regional project SmarT INtelliGent RAILwaY regional project*, **Principal Investigator** of the University of Pisa research unit – subcontract of the research unit ISTI-CNR, 100000 euro funded by Istituto di Informatica e Telematica del Consiglio Nazionale delle Ricerche (CNR-IIT)
- **2019 – 2021**, *Edge Computing, Internet of Things, Smart Cities and Communities*, **Principal Investigator**, 50000 euro, funded by Istituto di Informatica e Telematica del Consiglio Nazionale delle Ricerche (CNR-IIT)
- **2018 – 2020**, *Internet of Things, Smart Cities and Communities*, **Principal Investigator**, 50000 euro, funded by Istituto di Informatica e Telematica del Consiglio Nazionale delle Ricerche (CNR-IIT)

- **2017 - 2018**, *Experimental assessment of congestion control strategies for the Constrained Application Protocol (CoAP)*, **Principal Investigator**, 45000 euro, funded by European Project WiSHFUL under the 5th Open Call for experiments
- **2011 - 2015**, *Secondlife - Second Life of the Public Services*, funded by the Italian ministry for economic development
- **2012 - 2015**, *BETaaS, Building the Environment for the Things as a Service*, FP7-ICT-2011-8 n. 317674. Funded by the European Union within the 7th Framework Program
- **2010-2011**, Development of a protocol for Dynamic Frequency Selection in wireless mesh networks. Funded by Fluidmesh Networks (Milan, Italy)
- **2008**, Performance Evaluation of IEEE 802.16e. Funded by Nokia Research Centre (Helsinki, Finland)

MAJOR COLLABORATIONS

- **2017 - today**, *Computer Science Department*, Missouri University of Science and Technology, Rolla, Missouri, US, CReWMaN Lab directed by Prof. Sajal K. Das, study of the performance of 6TiSCH networks for industrial wireless sensor networks
- **2013 - 2018**, *Istituto di informatica e telematica, C.N.R*, Pisa, Italy, study of the performance of the RPL protocol in low-power and lossy networks
- **2010 - 2012**, *UC Davis, Computer Science Department*, Davis, USA, Network Research Group directed by Prof. Prasant Mohapatra, study of the channel allocation problem in wireless mesh networks, management and upgrade of QuRiNet, a 36-node outdoor wireless mesh network
- **2010 - 2011**, *University College Dublin*, Performance Engineering Laboratory, Dublin, Ireland, study of multimedia transmission over LTE

INVITED TALKS

- **C. Vallati**. “The 6TiSCH architecture for industrial wireless IP-based networks: overview and open research issues”, March 13, Missouri University of Science and Technology, Rolla, Missouri, USA.
- **C. Vallati**. “QoS support in the BETaaS platform”, BETaaS workshop, 11 May 2014, Aalborg, Denmark.
- G. Stea, **C. Vallati**. “Resource allocation in LTE”, 2 April 2012, University of Pisa, Pisa, Italy.
- **C. Vallati**. “LTE, tutorial and research prospective”, 4 March 2011, Dept. of Computer Science, UC Davis, CA, USA.
- **C. Vallati**. “Channel assignment in wireless mesh networks”, 12 December 2010, Dept. of Computer Science, UC Davis, CA, USA.

A full list of publications is available on: <https://scholar.google.it/citations?user=WRVWjE4AAAAJ>

Apr 24, 2023