# Carlo Vallati

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**EDUCATION:**

**Ph.D., Information Engineering,** University of Pisa, Italy.
Graduated with a thesis titled "Energy efficiency in next generation wireless networks: methodologies, solutions and algorithms".
**Master's Degree, Information Engineering,** University of Pisa, Italy.
Graduated **summa cum laude** with a final thesis titled "2k^r factorial analysis of power saving class I in IEEE802.16e". GPA 29/30
**Bachelor's Degree, Information Engineering,** University of Pisa, Italy.
Graduated **summa cum laude** with a final thesis titled "Realization of a driver for UHCI USB controller". GPA 28.4/30

**EXPERIENCE:**

**Postdoctoral researcher,** University of Pisa, Italy. January 2012 – Present.
- Involved in the European project BETaaS, Building the Environment for the internet of Things as a Service, 7th framework program
- Studied reliability and performance of routing protocols for low power and lossy networks
- Designed and validated an architecture for access and discovery of resources for IoT networks
- Designed and tested a dynamic frequency selection mechanism to manage efficiently radar events in frequencies co-located with Class C radar systems
- Advisor for MS and PhD students

**Doctoral researcher,** University of Pisa, Italy. January 2009 – December 2011.
- Collaborated on projects on different wireless technologies and different aspects of wireless communications
- Implemented and administered servers into the research group
- Designed wireless testbeds using different architectures
- Coded different simulators for performance assessment
- Author of several software for enhancing network simulation reliability
- Coauthored 10 research papers to conferences and journals relating to several different topics of wireless networks, among them:
  - Resilience and reliability improvement of wireless mesh networks
  - Efficient resource management in IEEE 802.11s wireless mesh networks
  - Energy efficient methodologies for terminal battery optimization in IEEE 802.16e networks
  - Performance evaluation of video transmission over LTE and IEEE 802.16e wireless networks
  - Data collection and analysis tools for simulations

**Visiting Scholar,** University of California**,** Davis**,** USA. September 2010 – March 2011.
- Designed and implemented a dynamic channel assignment algorithm for a wireless mesh testbed

- Maintained and upgraded of QuRiNet, a 36-node outdoor wireless mesh network
- Developed a prototype for event collection and measurement into *mac80211* Linux wireless driver

**Teaching Assistant**, University of Pisa, Italy. 2009-2011.
- Managed lab course for "*C++ programming*" class
- Project tutor for "*Advanced Networking Architectures and Wireless System*" class

**Research Fellow**, Department of Information Engineering, University of Pisa, Italy. February 2008 – December 2008.
- Defined and assessed real time and non real time scheduling algorithms for IEEE 802.16e networks, joint project with *Nokia Siemens Network*

**Intern**, Institute of Informatics and Telematics, C.N.R. (Italian National Research Council), Pisa, Italy. January 2006 – June 2006.
- Designed and deployed an application to improve the security of handheld and mobile devices.

## SKILLS
- Programming languages: C/C++, Linux shell-scripts, Python
- General knowledge of Linux wireless driver structure (mac80211/ath5k/ath9k)
- Linux Distribution Development: Slackware, OpenWRT
- Click Modular Router architecture
- Networking Technologies: Cisco routes/switches (IOS), Wireless Technologies (802.11)
- Wide experience with simulations and simulators (ns2, ns3, Opnet)
- Familiar with different wireless standards (802.11a/b/g/s, 802.16e, LTE)
- Familiar with multimedia content delivery systems over IP networks

## ACTIVITIES
- IEEE Member, 2009 – Present
- Cisco Networking Academy Program: CCNA and CCNP semesters 1 and 3
- Member of organization committees for international conferences (Web Chair, WoWMoM 2011, Local Chair, ValueTools 2009)
- Member of technical program committee for Vehicular 2012-13 and Hotmesh 2013
- Vice-Chair of the workshop IoT-SoS 2013
- External reviewer for several conferences and journals

## REFERENCES

Prof. Luciano Lenzini
Dpt. Information Engineering
University of Pisa
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Prof. Prasant Mohapatra
Dpt. Computer Science
University of California, Davis
prasant@cs.ucdavis.edu

Prof. Enzo Mingozzi
Dpt. Information Engineering
University of Pisa
e.mingozzi@iet.unipi.it

## PUBLICATIONS

**Book chapter:**
- C.Vallati, V. Omwando, P. Mohapatra "The experimental work vs. simulation in the study of mobile ad hoc networks", chapter of the book "Mobile Ad Hoc Networking: The cutting edges directions". Stefano Brasagni, Marco Conti, Silvia Giordano and Ivan Stojmenovic. 2013, John Wiley & Sons, Inc., Hoboken, NJ, USA.

**Journals:**
- L. Bisti, L. Lenzini, E. Mingozzi, C. Vallati, A. Erta, U. Malesci. "Improved Network Resilience of Wireless Mesh Networks Using MPLS and Fast Re-Routing Techniques". Ad Hoc Networks, Vol. 9, No. 8, pp. 1448-1460, November 2011.
- D. Migliorini, E. Mingozzi, C. Vallati. "Performance evaluation of H.264/SVC video streaming over mobile WiMAX". Computer Networks Volume 55 Issue 15, October, 2011.
- C. Cicconetti, L. Lenzini, E. Mingozzi, C.Vallati. "Reducing Power Consumption with QoS Constraints in IEEE 802.16e Wireless Networks". IEEE Transactions on Mobile Computing, Vol. 9, No. 7, pp. 1008-1021, July 2010. **Selected as spotlight paper for the July issue of the journal.**

**Conferences:**
- G. Tanganelli, E. Mingozzi, C. Vallati, C. Cicconetti, "A Distributed Architecture for Discovery and Access in the Internet of Things", Demo Infocom 2013, In Press.
- P. Mcdonagh, C. Vallati, A. Pande, P. Mohapatra, P. A. Perry, E. Mingozzi, "Investigation of Scalable Video Delivery using H.264 SVC on an LTE Network". WPMC 2011. **The paper received the best paper award.**
- L. Lenzini, E. Mingozzi, C. Vallati. "A Distributed Delay-balancing Slot Allocation Algorithm for 802.11s Mesh Coordinated Channel Access under Dynamic Traffic Conditions". MASS 2010.
- C. Cicconetti, L. Lenzini, D. Migliorini, E. Mingozzi, C. Vallati. "Design and Performance Evaluation of an Energy-Aware Scheduling Framework for Mobile WiMAX". MSWiM'10.
- D. Migliorini, E. Mingozzi, C. Vallati. "QoE-oriented performance evaluation of video streaming over WiMAX". WWIC 2010.
- M. Andreozzi, D. Migliorini, G. Stea, C. Vallati. "Ns2Voip++, an enhanced module for VoIP simulations". SIMUTools 2010.
- M. Andreozzi, G. Stea, C. Vallati. "A Framework for Large-scale simulations and Output Result Analysis with ns-2". Qosim 2009.
- C. Cicconetti, E. Mingozzi, C. Vallati. "A 2k×r factorial analysis tool for ns2measure". NsTools 2009.
- G. Anastasi, A. Bacioccola, C. Cicconetti, L. Lenzini, E. Mingozzi, C. Vallati, "Performance evaluation of power management for best effort applications in IEEE 802.16 networks". European Wireless 2008.

## TALKS
- G. Stea, C. Vallati. "Resource allocation in LTE", 2 Apr 2012, University of Pisa, Italy.
- C. Vallati. "LTE, tutorial and research prospective", 4 Mar 2011, Dept. of Computer Science, UC Davis, CA, USA
- C. Vallati. "Channel assignment in wireless mesh networks", 12 Dec 2010, Dept. of Computer Science, UC Davis, CA, USA