



# UNIVERSITÀ DEGLI STUDI DELL'AQUILA

**Prof. Roberto Valentini**

## **Curriculum scientifico**

(Aggiornato il 2020/10/26)

Roberto Valentini received the B.S. and M.S. degrees (summa cum laude) in telecommunications engineering and the Ph.D. degree in information and communication technology (ICT) from the University of L'Aquila, Italy, in 2009, 2014, and 2017, respectively. In 2014, was a visiting student with the Royal Institute of Technology, Stockholm, to finalize his studies. From 2014 to 2017, he was a visiting Ph.D. student with the University of California at Irvine, Irvine. He is currently a Post-Doctoral Fellow with the Department of Information Engineering, Computer Science and Mathematics, and a member of the Centre of Excellence DEWS, University of L'Aquila, Italy. His research activity is focused on energy efficient communication paradigms for the Internet of Things, backscattering communications, passive radio-frequency identification systems, energy harvesting, and cyber-physical systems.

### **Education**

Doctoral Program in ICT [2014 - 2017] University of L'Aquila. Thesis: "Modeling and Design of Wireless Protocols Towards Energy Neutral IoT"

MSc. Engineering for Telecommunication [2010 - 2014] University of L'Aquila. Thesis: "Performance Analysis of the IEEE 802.15.3c Medium Access Control Layer for Millimeter Wave WPANs"

BSc. Engineering for Telecommunication [2004 - 2009] University of L'Aquila. Thesis: "Non-Destructive Measurement of RF Permittivity With an Open-ended Coaxial Line"

### **Visiting Positions**

Ph.D. Exchange Program [December 2016] University of California, Irvine. Research activity: battery aging control solutions for energy harvesting embedded systems and wireless networks. Duration: 5 months

Ph.D. Exchange Program [March 2015] University of California, Irvine. Research activity: battery aging control solutions for energy harvesting embedded systems and wireless networks. Duration: 6 months

Summer Internship [June 2014] University of California, Irvine. Project: Modeling Medium Access Strategies for mmWave WPAN. Duration: 3 months

ERASMUS Placement Exchange Program. [December 2013] KTH Royal Institute of Technology. Project: Addressing Blockage and Deafness in mmWave WPAN. Duration: 6 months

## Research

Post-Doctoral Fellowship in ICT [2018 - present] University of L'Aquila. Research Area: High Energy Efficient Communications for IoT and Pervasive Connections

## Scientific Positions

Guest Editor at MDPI Energies - Open Access Journal [2019]

## Teaching

Undergraduate Course at Dept. of Industrial Engineering [2019 - present] University of L'Aquila. Course: Analysis and Processing of Signals

Teaching Assistant at Dept. of Information Engineering, Computer Science and Mathematics [2015 - present] University of L'Aquila. Course: Analysis and Processing of Signals, Wireless Communications

## Publications

[1] R. Valentini, M. Levorato, and C. Fischione, "Performance analysis of IEEE 802.15.3c-based mmW wireless networks," in 49th Annual Conference on Information Sciences and Systems (CISS), 2015, pp. 1?6.

[2] N. Dang, R. Valentini, E. Bozorgzadeh, M. Levorato, and N. Venkatasubramanian, "A unified stochastic model for energy management in solar-powered embedded systems," in 2015 IEEE/ACM International Conference on Computer-Aided Design (ICCAD), Nov 2015, pp. 621?626.

[3] R. Valentini, N. Dang, M. Levorato, and E. Bozorgzadeh, "Modeling and control battery aging in energy harvesting systems," in 2015 IEEE International Conference on Smart Grid Communications (SmartGridComm), Nov 2015, pp. 515?520.

[4] R. Alesii, P. D. Marco, F. Santucci, P. Savazzi, R. Valentini, and A. Vizziello, "Multi-reader multi-tag architecture for uwb/uhf radio frequency identification systems," in 2015 International EURASIP Workshop on RFID Technology (EURFID), Oct 2015, pp. 28?35.

[5] R. Valentini, M. Levorato, and F. Santucci, "Aging aware random channel access for battery-powered wireless networks," IEEE Wireless Communications Letters, vol. 5, no. 2, pp. 176?179, April 2016.

[6] R. Alesii, P. D. Marco, F. Santucci, P. Savazzi, R. Valentini, and A. Vizziello, "Backscattering uwb/uhf hybrid solutions for multi-reader multi-tag passive rfid systems," EURASIP Journal on Embedded Systems, vol. 2016, no. 1, p. 10, May 2016.

[7] R. Valentini and M. Levorato, "Optimal aging-aware channel access control for wireless networks with energy harvesting," in 2016 IEEE International Symposium on Information Theory (ISIT), July 2016, pp. 2754?2758.

[8] R. Valentini, M. Levorato, and F. Santucci, "Optimal Aging-Aware Channel Access and Power Allocation

for Battery-Powered Devices With Radio Frequency Energy Harvesting,? IEEE Transactions on Communications, vol. 66, no. 11, pp. 5773?5787, Nov 2018.

[9] M. L. R. Valentini, R. Alesii and F. Santucci, ?Cross-layer analysis of rfid systems with correlated shadowing and random radiation efficiency,? in 2019 IEEE International Conference on Communications (ICC), 2019.

[10] R. Valentini, P. Di Marco, R. Alesii, and F. Santucci, ?Exploiting capture diversity in distributed passive RFID systems,? in 2020 10th Annual Computing and Communication Workshop and Conference (CCWC), 2020, pp. 0996?1000.

[11] R. Valentini, P. D. Marco, R. Alesii, and F. Santucci, ?Cross-Layer Analysis of Distributed Passive RFID Systems Over Faded Backscattering Links,? in 2020 IEEE Wireless Communications and Networking Conference (WCNC), 2020.

[12] N. Ahmed, M. Levorato, R. Valentini, and G. Li, ?Data Driven Optimization of Energy Management in Residential Buildings with Energy Harvesting and Storage,? MDPI Energies, 2020.