

# Antonio Capone

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## Contact information

Prof. Antonio Capone

Born June 3, 1969  
Italian

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## Education

<b>Doctorate</b> (PhD in Information Engineering) Dept. of Electronics and Information Politecnico di Milano, Italy Thesis: Packet access in mobile radio networks Advisors: Prof. Luigi Fratta, Prof. Flaminio Borgonovo	02/1999
<b>Laurea</b> (Master of Science in Electronic Engineering) Dept. of Electronics and Information Politecnico di Milano, Italy Thesis: General Packet Radio Service in GSM Advisors: Prof. Luigi Musumeci, Prof. Giuseppe Bianchi	07/1994
<b>Diploma</b> (High School) Liceo Scientifico Banzi Bazoli, Lecce, Italy	07/1988

## Employment history

<b>Full Professor</b> Dept. of Electronics Information and Bioengineering Politecnico di Milano	08/2011 – to date
<b>Associate Professor</b> Dept. of Electronics Information and Bioengineering Politecnico di Milano	03/2005 – 07/2011
<b>Assistant Professor</b> Dept. of Electronics Information and Bioengineering Politecnico di Milano	05/1999 – 02/2005
<b>Visiting Professor</b> Dept. of Computer Science University of California at Los Angeles (UCLA)	05/2000 – 10/2000

## Teaching experience

**Official Lecturer in academic courses**

- Mobile Radio Networks (Master), ~ 80 stud. per year  
Taught in English @ Master in Telecommunications Engineering, Politecnico di Milano  
Academic years 2011-12, 2012-13, 2013-14, 2014-15, 2015-16, 2016-17, 2017-18
- Wireless Internet (Master), ~ 80 stud. per year  
Taught in English @ Master in Telecommunications Engineering, Politecnico di Milano  
Academic years 2011-12, 2012-13, 2013-14, 2014-15, 2015-16, 2016-17, 2017-18
- Fundamentals of Communications Networks and the Internet (Bachelor), ~ 200 stud. per year  
Taught in Italian @ Bachelor in Computer Science and Engineering, Politecnico di Milano  
Academic years 2015-16, 2016-17, 2017-18
- Mobile Networks (Master), ~ 100 stud. per year  
Taught in Italian @ Master in Telecommunications Engineering, Politecnico di Milano  
Academic years 2006-07, 2007-08, 2008-09, 2009-10, 2010-11
- Distributed Wireless Networks (Master), ~ 100 stud. per year  
Taught in Italian @ Master in Telecommunications Engineering, Politecnico di Milano  
Academic years 2006-07, 2007-08, 2008-09, 2009-10, 2010-11
- Infrastructures and Protocols for the Internet (Bachelor), ~ 150 stud. per year  
Taught in Italian @ Bachelor in Computer Science and Engineering, Politecnico di Milano  
Academic years 2001-02, 2002-03, 2003-04, 2004-05, 2005-06, 2006-07, 2007-08, 2008-09
- Communications Networks (Bachelor), ~ 150 stud. per year  
Taught in Italian @ Bachelor in Information Engineering, Politecnico di Milano  
Academic years 1999-00, 2000-01

#### **Seminars and labs in academic courses**

- Communications Technologies for the Smart Grid (Master)  
Taught in English @ Master in Energy Engineering, Politecnico di Milano  
Academic years 2011-12, 2012-13, 2013-14, 2014-15
- Simulation techniques for computer networks  
Taught in Italian @ Bachelor in Telecommunications Engineering, Politecnico di Milano  
Academic years 2000-01, 2001-02
- IP Telephony  
Taught in Italian @ Bachelor in Computer Science and Engineering, Politecnico di Milano  
Academic years 2006-07, 2007-08
- Communications Systems (Bachelor)  
Taught in Italian @ Bachelor in Computer Science and Engineering, Politecnico di Milano  
Academic years 1998-99, 1999-00
- Traffic theory  
Taught in Italian @ Bachelor in Computer Science and Engineering, Politecnico di Milano  
Academic years 1997-98, 1998-99
- Signal Processing  
Taught in Italian @ Bachelor in Information Engineering, University of Lecce  
Academic years 1997-98

#### **PhD courses**

- Wireless Access, Linkoping University, Marie Curie Project ACT5G, Sweden, February 2014.
- Wireless networks, PhD Program "Communication Technologies, Systems and Networks", Universidad Politecnica de Valencia, Spain, April 2010.
- Radio planning problems and methodologies in wireless networks, Program "Communication Technologies, Systems and Networks", Universidad Politecnica de Valencia, Spain, May 2008.
- Mathematical programming models for the radio planning of wireless networks, 3rd EURO-NGI PhD Summer School, Universidad de Cantabria, Laredo (Spain), September 2006.
- Main trends in Wireless and mobile architectures, with prof. L. Fratta and prof. A. Acampora, Network of Excellence EURO-NGI, February 2006.
- Advanced topics in networking, PhD program in Information Engineering, Politecnico di Milano. May 2003.

# Student advising and mentoring

## Advised PhD dissertations

- **Matteo Cesana** (Politecnico di Milano, 2004), he is currently full professor at Politecnico di Milano, Italy
- **Simone Redana** (Politecnico di Milano, 2005), he is currently group lead at Nokia Bell Labs, Munich, Germany.
- **Fabio Martignon** (Politecnico di Milano, 2005), he is currently full professor at University of Bergamo, Italy
- **Gianluca Villa** (Politecnico di Milano, 2006), he is currently senior manager at Accenture, Milano.
- **Luca Pizziniaco** (Politecnico di Milano, 2008), he is currently group lead at Forcepoint LLC, Sophia Antipolis, France.
- **Ilario Filippini** (Politecnico di Milano, 2009), he is currently assistant professor at Politecnico di Milano, Italy
- **Razvan Pitic** (Politecnico di Milano, 2009), he is currently Lab lead at the School of Management, Politecnico di Milano, Italy
- **Joceline Elias** (Politecnico di Milano, 2010), she is currently associate professor at Université Paris Descartes, France
- **Stefano Paris** (Politecnico di Milano, 2011), he is currently assistant professor at Université Paris Descartes and senior researchers at Huawei Paris Laboratories, France
- **Antimo Barbato** (Politecnico di Milano, 2013), he is currently researcher at A2A, Milano, Italy
- **Luca Gianoli** (Politecnico di Milano, 2014), he is currently post-doc at Polytechnique de Montréal, Canada.
- **Silvia Boiardi** (Politecnico di Milano, 2014), she is currently Innovation Architect at Vodafone, Newbury, UK.
- **Michele Mangili** (Politecnico di Milano, 2015), he is currently technical director at ErnieApp Ltd., Dublin, Ireland.
- **Vincenzo Sciancalepore** (Politecnico di Milano, 2016), he is currently researcher at NEC Europe Laboratories, Heidelberg, Germany
- **Carmelo Cascone** (Politecnico di Milano, 2017), he is currently group lead at ON.Lab, Open Networking Foundation, Menlo Park, California, USA.
- **Amine Barkat** (Politecnico di Milano, 2017), he is currently with IT Trainer, Italy

## Mentored PhD dissertations

- **Pietro Belotti** (Politecnico di Milano, 2003, advisor prof. Edoardo Amaldi), he is currently Optimization Developer at FICO, Birmingham, UK.
- **Paolo Costa** (Politecnico di Milano, 2006, advisor prof. Gianpietro Picco), he is currently researcher at Microsoft Research, Cambridge, UK.
- **Luca Campelli** (Politecnico di Milano, 2010, advisor prof. Matteo Cesana), he is currently senior researcher at CEFRIEL, Milano, Italy.
- **Ilaria Malanchini** (Politecnico di Milano, 2012, advisor prof. Matteo Cesana), she is currently senior researcher at Nokia Bell Labs, Stuttgart, Germany.
- **Alessandro Redondi** (Politecnico di Milano, 2014, advisor prof. Matteo Cesana), he is currently assistant professor at Politecnico di Milano.

## Currently advised PhD students

- **Davide Sanvito** (Politecnico di Milano), Topic: Abstractions and applications for stateful data planes in Software Defined Networks
- **Lorena Cano** (Politecnico di Milano), Topic: Infrastructure sharing models and algorithms for mobile radio networks
- **Francesco Devoti** (Politecnico di Milano), Topics: Context based networking in advanced mobile networks
- **Daniele Moro** (Politecnico di Milano), Topic: NVF and Application Offloading in Virtualized and Software-Defined Networks

- **Özgür Umut Akgül** (Politecnico di Milano), Topics: Dynamic market of radio resources in shared mobile networks
- **Armin Okic** (Politecnico di Milano), Topics: Traffic and context data analysis for mobile network optimization and customization

### Advised Master students

I have advised more than **200 master students** during their master thesis work. According to the Italian academic system, the master thesis is a research/project work of approximately 6-9 months.

## Academic management

<b>Member of University Strategic Team POLIMI 2040</b> Politecnico di Milano	01/2017 – to date
<b>Dean of School</b> School of Industrial and Information Engineering Politecnico di Milano	02/2019 – to date
<b>Deputy Dean of School</b> School of Industrial and Information Engineering Politecnico di Milano	01/2016 – 01/2019
<b>Dean of Studies</b> Telecommunications Engineering Politecnico di Milano	01/2013 – 12/2018
<b>Member of the School board</b> School of Industrial and Information Engineering Politecnico di Milano	01/2013 – 12/2018
<b>Vice-Director for Teaching</b> Dept. of Electronics, Information and Bioengineering Politecnico di Milano	01/2016 – 01/2019
<b>Member of the PhD board</b> PhD Program in Information Engineering Dept. of Electronics, Information and Bioengineering Politecnico di Milano	01/2012 – 12/2015

## Honors and awards

- **IEEE Fellow (2019)**
- **Best paper:** A. Capone, M. Barros, H. Hrasnica, S. Tompros, “A New Architecture for Reduction of Energy Consumption of Home Appliances”, European conference TOWARDS eENVIRONMENT, Prague, Czech Republic, March 25-27, 2009.
- **Best paper:** G. Panza, A. Capone, D. Pinarello, P. Belotti, “Robustness in Next Generation Networks”, IST-Mobile Summit 2009, Santander, Spain, 10-12 June, 2009
- **Best paper:** M. Mangili, F. Martignon, A. Capone, “A Comparative Study of Content-Centric and Content-Distribution Networks: Performance and Bounds”, IEEE Globecom 2013, Atlanta, GA (USA), 9-13 Dec. 2013.

- **Best paper runner up:** A. Capone, C. Cascone, A.Q.T. Nguyen, B. Sansò, "Detour Planning for Fast and Reliable Failure Recovery in SDN with OpenState", IEEE DRCN 2015, Kansas City, USA, March 24-27, 2015
- **1000x Award, GreenTouch Consortium (Bell Labs),** "For sustained technical and personal contributions to the leadership and success of the BCG2 project and the Mobile Access working group", 2014.

## Editorial and organization activities

### Editorial boards

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|--|----------------|
| - IEEE Transactions on Mobile Computing                | 2014 – to date |
| - ACM/IEEE Transactions on Networking                  | 2009 – 2014    |
| - Computer Networks (Elsevier)                         | 2006 – 2016    |
| - Computer Communications (Elsevier)                   | 2008 – to date |
| - Wireless Communications and Mobile Computing (Wiley) | 2006 – 2014    |
| - Journal of Networks (Academic Publisher)             | 2005-2008      |

### Guest editorials

- IEEE Communications Magazine, 5G Network Slicing - Part 1: Concepts, Principles, and Architectures, Volume: 55 Issue: 5, May 2017.
- IEEE Communications Magazine, 5G Network Slicing – Part 2: Algorithms and Practice, Volume: 55 Issue: 5, August 2017.
- Computer Networks (Elsevier) special issue on "Green Communication Networks", July 2012.
- Ad Hoc Networks Journal (Elsevier) special issue on "Recent Research Directions in Wireless Ad Hoc Networking", August 2007.
- Wireless Communications special issue on 3G/4G/WLAN/WMAN Planning and Optimization, December 2006.

### Conference organization

- TPC Co-Chair of IEEE INFOCOM 2013.
- Area Chair of IEEE INFOCOM 2012
- Area Chair of IEEE INFOCOM 2014
- Area Chair of IEEE INFOCOM 2015
- General Chair of WONS 2011.
- Workshop Chair of IEEE INFOCOM 2010.
- Technical Program co-chair of Med-Hoc-Net 2006.
- Publicity Chair of MOBIQUITOUS 2007.

### TPC member

Member of the Technical Program Committees of **more than 70** international conferences that include: IEEE INFOCOM, IEEE SECON, IEEE MASS, IEEE ICC, IEEE Globecom, IEEE VTC, IEEE LCN, ACM MobiCom, IFIP Networking.

### Keynotes, panels and tutorials

- **How to slice and share a virtualized mobile network**, Tutorial, IEEE CAMAD 2017, Lund, Sweden, June 22, 2017
- **From dumb to smarter switches in software defined networks: an overview of data plane evolution**, Tutorial, IEEE NETSOFT 2015, London, UK, April 13, 2015.
- **From dumb to smarter switches in software defined networks: an overview of data plane evolution**, Tutorial, IEEE CAMAD 2014, Athens, Greece, Dec 2, 2014.
- **Green Communications: Can We Achieve Load Proportional Energy Use?**, Panel, IEEE INFOCOM 2013, Turin, Italy, April 17, 2013.

## Research collaborations

- Brunilde Sansò, Ecole Polytechnique de Montreal, Canada
- Giuseppe Bianchi, University of Rome Tor Vergata, Italy
- Di Yuan, Linköping University and Uppsala University, Sweden
- Michal Pioro, Lund University and Warsaw University of Technology, Sweden and Poland
- Artur Tomaszewski, Warsaw University of Technology, Poland
- Albert Banchs, Universidad Carlos III de Madrid, Spain
- Mario Gerla, University of California at Los Angeles, USA
- Ian Akyildiz, Georgia Institute of Technology, USA
- Chiara Petrioli, University of Rome La Sapienza, Italy
- Guy Pujolle, Université Pierre et Marie Curie, France
- Cristina Nita-Rotaru, Northeastern University, USA
- Ulrich Barth, Nokia Bell Labs, Germany
- Kei Sakaguchi, Tokyo Institute of Technology, Japan

## Technology Transfer

- Funder and Share holder, MobiMESH, Start-up and university spin-off company, wireless products and services
- Scientific Advisor, ErnieApp LTD, Start-up company, privacy management applications and services

## Funded research project

### Recent projects

- Research Project HUAWEI Research Italy (Integrated Access and Backhauling) 2018-20
- Research Project VODAFONE (Network KPIs and IoT) 2019-20
- Trial Project VODAFONE (5G Trail in the city of Milan) 2018-2020
- EU/Brasil Project ATMOSPHERE (federated cloud systems) 2017-2019

- European Project SPOTLIGHT (5G and beyond) 2017-2020
- Research Project A2A (LoRa WAN, IoT) 2017
- Research Project HUAWEI Research France (Traffic Engineering in SDN) 2017-18
- Research Project VODAFONE (Network KPIs and IoT) 2018-19
- Research Project VODAFONE (Network KPIs and IoT) 2017-18
- Research Project VODAFONE (Green Nets & Network KPIs) 2016
- Research Project VODAFONE (Network KPIs) 2015
- European Project ACT5G (5G Networks) 2015-2019
- European Project BEBA (Software Defined Networks) 2015 – 2017
- Research Project VODAFONE (Network KPIs) 2014
- EU/Japan Project MiWEBA (5G networks based on MM-waves), 2014-2016 Research Project VODAFONE (Network KPIs)

### Other projects

- National Project PRIN GATECOM (Home Networking)
- Cooperation Project, Green ICT & ICT for Green, Regione Lombardia
- Research contract. Save-Energy, Vimercate, Italy. Wireless NETworking, 2011.
- Research contract. Technogym, Gambettola, Italy. Wireless NETworking, 2010.
- Research contract. Vodafone, Milan, Italy. Home Authomation, 2010.
- National Project MESE (Wireless Mesh Networks for Sensing Applications), 2008-20
- National Project PRIN 2007 SESAME (Scalable Efficient Secure Autonomic MESH networks), national coordinator – 2008-2010
- European Project AIM (7FP), Energy Efficiency At Home, 2008-2009.
- Research Contract, TechnoGYm, Wireless networks, 2009.
- National Project FIRB InSyEme (Integrated System for Emergency), 2007-2009
- regional Project, Personal eMonitors (eHealth System), 2007-2009 European Network of Excellence EURO NF (7FP), 2009-2010.
- Research contract. ALCATEL, Vimercate (MI), Italy. Optical Network Design, 2008-10.
- European Network of Excellence EURO FGI (6FP), 2007-2008.
- Research contract. VOISMART, Milan, Italy. IP Telephony, 2006.
- Research contract. AeM, Milan, Italy. Telemesuring systems and networks, 2006-2007.
- Research contract. ALCATEL, Vimercate (MI), Italy. Optical Network Design, 2005-06.
- European Project WINNER, in cooperation with Siemens Communications, Cinisello B. (Milan), Italy, 2004-2006.
- European Network of Excellence EURO NGI, 2004-2006.
- European Project GAWIND, 2006-2009.

### Publications

Current indexes according to Google Scholar:

h-index: 46  
i10-index: 165  
citations: 7874

Current indexes according to Scopus:

h-index: 33  
i10-index: 113  
citations: 4286

Full list of publications available at: <http://www.antlab.polimi.it/pub-capone>