Curriculum Vitae of Anna Scaglione

URL: http://www.ece.ucdavis.edu/scaglionelab/index.html

Short Bio

Anna Scaglione (M.Sc.'95, Ph.D. '99) is currently a professor in electrical and computer engineering at Arizona State University. She was Professor of Electrical Engineering previously at the University of California at Davis (2008-2014), and at Cornell University, (2001-2008). Prior to joining the engineering faculty at Cornell, Scaglione was an assistant professor at the University of New Mexico (2000-2001).

Dr. Scaglione's expertise is in the broad area of statistical signal processing for communication, electric power systems and information networks. Her current research focuses on studying and enabling decentralized learning and signal processing in networks of sensors. She also focuses on sensor systems and networking models for cyber security in critical infrastructure and for the demand side management and reliable energy delivery and in other aspects at the intersection between intelligent infrastructure, information systems and social networks.

To date, Dr. Scaglione has mentored twelve 12 PhD graduates, 4 postdocs and a number of Master and Undergraduate students.

Dr. Scaglione was elected an IEEE fellow in 2011, honored by both the Signal Processing and the Communication Societies. She was editor in chief in (2012-2013) of the *IEEE Signal Processing Letters*, and served as associate editor for the *IEEE Transactions on Wireless Communications* from 2002 to 2005. From 2008 to 2011, she served on the editorial board of the *IEEE Transactions on Signal Processing* from 2008, where she was area editor in 2010-11.
She was general chair of the SPAWC 2005 workshop and on the Signal Processing for Communication Committee from 2004 to 2009. She has been an IEEE SmartGridComm conference steering committee member since 2010, and was on board of governors of the IEEE Signal Processing Society during 2011-2014.

Dr. Scaglione received the 2000 IEEE Signal Processing Transactions Best Paper Award and the 2013, IEEE Donald G. Fink Prize Paper Award for the best review paper in that year in the IEEE publications.

Her research with her students was also honored with the *2013 IEEE Signal Processing Society Young Author Best Paper Award* (Lin Li), and two conference best paper awards: the Ellersick Best Paper Award (MILCOM 2005) and the student best paper award at Smartgridcomm 2014. Se is also a recipient of the NSF CAREER grant (2002).

A co-holder of eight granted US patents, Dr. Scaglione is the author of over 230 publications, including 64 refereed journal articles, 164 refereed conference and invited papers, 5 periodical articles, 11 book chapters and 2 proceedings papers.

Since 2001, Dr. Scaglione has been a frequent keynote and plenary speaker and invited speaker to international conferences programs.

Professional Profile

Education

March 1999/ May 2000
Electrical and Computer Engineering, University of Minnesota - Minneapolis, MN (USA)
Post-Doctoral Researcher

1995-1999
Università di Roma "La Sapienza" - Rome, Italy
Doctor of Philosophy

1990-1995
Università di Roma "La Sapienza" - Rome, Italy
Laurea Degree. Graduated *magna cum laude*

Appointments

January 2014 to present
Department of Electrical, Energy and Computer Engineering, Arizona State University, AZ (USA)
Full Professor

April 2010 to 2014
Department of Electrical and Computer Engineering, UC Davis, Davis, CA (USA)
Full Professor

July 2008 to April 2010
Department of Electrical and Computer Engineering, UC Davis, Davis, CA (USA)
Associate Professor

July 2006 to July 2008
Department of Electrical and Computer Engineering, Cornell University - Ithaca, NY (USA)
Associate Professor

July 2001 to July 2006
Department of Electrical and Computer Engineering , Cornell University - Ithaca, NY (USA)
Assistant Professor

August 2000/ June 2001
Department of Electrical and Computer Engineering, University of New Mexico - Albuquerque, NM (USA)
Assistant Professor

Sabbatical appointments

September 2013 to March 2014
Electrical Engineering, Stanford University

Visiting Professor

January to June 2007
Center for Neuroscience & Courant Institute, NYU
Visiting Scholar

September-December 2006 (sabbatical)
Audiovisual Communications Laboratory, I&C Ecole Polytechnique Fédérale de Lausanne - EPFL
Visiting Professor

Honors and Awards

- *2014 IEEE SmartGridComm Student Best Paper Award won by my PhD student Lorenzo Ferrari*

    o *For the paper..*

- *2013 IEEE Signal Processing Society Young Author Best Paper Award, won by my PhD student Lin Li*

    o For the paper by Lin Li, Anna Scaglione, and Jonathan Manton, "Distributed Principal Subspace Estimation in Wireless Sensor Networks" IEEE Journal of Selected Topics in Signal Processing, Volume: 5, No. 4, August 2011

- *2013 Outstanding Mid-Career Faculty Award, College of Engineering UC Davis*

- *2013 IEEE Donald G. Fink Prize Paper Award*

    o For the paper coauthored with S. Galli and Z. Wang, "For the Grid and through the Grid: the role of powerline communications in Smartgrid" in the special issue "Smart Grid: The Electric Energy System of the Future," Proceedings of the IEEE , vol.99, no.6, pp.913-914, June 2011

- *IEEE Fellow, 2011*

- *2000 IEEE Signal Processing Transactions Best Paper Award (in the Signal Processing for Communication area)*

    o *For the paper co-authored with G.B. Giannakis and S. Barbarossa* "Redundant Filterbank Precoders and Equalizers Part I and II" Volume 47, No. 7, Page(s): 1988-2022, July 1999.

- *2002 NSF Career Award*
    o "Precoding for high bit rate wireless modems"
- *2005 Ellersick Best Paper Award* (MILCOM 2005)
    o for the paper co-authored with Y. W. Hong, Rajit Manohar and Birsen Sirkeci Mergen, entitled "Dense networks are also energy efficient: when more is less.".
- *2005 Best paper for Young Authors of the Taiwan IEEE Comsoc/Information theory section*
    o Co-author with Y. W. Hong, for the paper entitled "A Scalable Synchronization Protocol For Large Scale Sensor Networks And Its Applications", IEEE Journal on Selected Areas in Communications, JSAC, Vol. 23, Issue 5, May 2005 pp. 1085 – 1099

Research

Current Research Interests

Intelligent Infrastructure
    Energy management and Smart Grid
    Cyber-physical systems monitoring and optimization

Network science
        Multi-agent learning
        Bio-inspired coordination, synchronization and access
        Analysis of power grid vulnerability and security

RF Communications and Signal Processing
        Wireless Sensor networks
        Spectrum and channel sensing
        Sub-Nyquist sampling receivers
        Wireless-relay networks analysis, network MIMO
        Powerline, HF channel modeling and communication design

Sponsors: Summary of External Funding

- NSF CCF 247896 (498K$ – 2013-2016) (**PI,** with Qing Zhao) "Online Learning and Exploitation of the Radio Frequency Spectrum with Sub-Nyquist Sampling Receivers"

- UC Davis RISE ($300,000– 2012-2015) (**Co-PI** with Karl Levitt, James Bushnell, Anna Scaglione, George Barnett, Nicole Biggart, Hao Chen) "Cyber Security for Critical Infrastructures"

- NSF SaTC CCF-1229008 ($839,997 – 2012-2015) (**Co-PI** with Karl Levitt, Jeff Rowe, Paul Kesidis, Jim Bushnell) "TWC: Medium: Collaborative: Towards Securing Coupled Financial and Power Systems in the Next Generation Smart Grid"

- DOE-Lawrence Berkeley Laboratory (2011-2015) (208,991k$)(**UC Davis –PI)** "CEDS / Application of Cyber Security Techniques in the Protection of Efficient Cyber-Physical Energy Generation Systems,"

- DOE-Lawrence Berkeley Laboratory (2010-2014) (CERTS): The Consortium for Electric Reliability Technology Solutions: (397k$)(**UC Davis –PI)** "Operations and Markets Analysis Project 3D: Direct Load Management of Electric Vehicles"

- DOE DE-OE0000097 (2010-2015) (1m$) (**UC Davis –PI)** "TCIPG: Trustworthy Cyber Infrastructure for the Power Grid" center lead by University of Illinois a Urbana Champaign (UIUC), Dartmouth College, University of California at Davis, and Washington State University.

- NSF CCF-1011811 (2010-2013) (300K$)(**Co-PI** with Ali Sayed, Cristophe Chamley, Steven Pratt and Jose Moura) "Cooperation and Learning over Cognitive Networks"

- Blue Highway/Welch Allyn (270K$) (2009-2011))(**Co-PI**, with Alyssa Apsel and Rajit Manohar) "Protocols for Data Exchange on Remote Sensing Platforms"

- NSF (0834582): (2009 2013)(**Co-PI**, with Alyssa Apsel and Rajit Manohar 764 K$) "CSR-DMSS,TM: Distributed Computing With an Ad-Hoc Network"

- NSF NETS Medium (905267) (165K$) (2009-2012) (**Co-PI**, with Elza Erkip, Shiv Panwar, Yao Wang NYU-Poly) "Unlocking Capacity for Wireless Access Networks through Robust Cooperative Cross-Layer Design"

- NSF - CCF - Collaborative Research (0729074): (2008 2010)(**Co-PI**, with Tara Javidi and Kristi Morgensen 292K$) "New Communication Infrastructures For Networked Coordinated Control"

- NeTS-ProWin -- COLLABORATIVE RESEARCH (0626751): (2006-2010) (**PI**, with M. Gastpar, J.N. Laneman & Z. Haas, $900,532) "A new taxonomy for cooperative wireless networking",

- NSF – FMF CCF – 0514243 (2005-2008) (sole **PI**, $ 393,281) "Scalable Scheduling and Transmission for Sensor Systems"

- ONR - BAA 04-008 "MIMO Precoding and Multi-Node Diversity Enhancing the Range and Reliability of HF Transmission" (**Co-PI**, Phase I (2006-2007- 18 months): 160K$ to Cornell; Phase II (2007-2008- 18 months)

160K$ to Cornell) (PI S. Galli, Telcordia Tec. Inc., Co-PIs T. Banwell Telcordia Tec. Inc. and Lang Tong, Cornell U.) Phase III (2009-2010) 193K$ to Cornell.

- NSF - ITR   CCR- 042827(2004-2010) (**Co-PI**, 1,000,000$)"Activity-Driven Computing and Communication for Cooperative Distributed Networks" (co-Pi with Rajit Manohar, Cornell U.)

- NSF Grant CCR-0431077 SGER (2004) (sole **PI**, 95K$): "Cooperative networks: a framework to derive scalable cross-layer designs"

- NSF [Career Award] CCR-0133635 (2002-2005), (sole **PI**, 350K$): "Precoding for high bit rate wireless modems"

- ONR DURIP (2002-2003) (**Co-PI,** 497K$)"Cornell Mobile Wireless and Sensor Network Test bed" funding to buy equipment for wireless networks experiments (*with L. Tong (PI), R. Manohar and S. Servetto,* Cornell U.)

- NSF Grant CCR-0347514 SGER (2003) (sole **PI**, 75K$): "Scalable cooperative communications in adaptive large scale networks inspired by natural swarms"

- NSF Grant CCR-0227676 SGER (2002) (**PI**, 99K$): "Routing and Data Compression" (with S. Servetto, Cornell U.)

Publications
- **Publication list**
- **Books**
- **Journals**
- **Conference papers**

Collaborators

Prof. S. Barbarossa (University of Rome), Prof. G. B. Giannakis (University of Minnesota), Prof. Ananthram Swami (ARL), Prof. S. Alouini (University of Minnesota), Prof. P. Stoica (University of Uppsala), Prof. Sergio Servetto (Cornell University), Prof. Mihaela Van der Schaar (UCLA), Prof. Pramod Varshney (Syracuse University), Prof. Sheila Hemami (Cornell U.), Prof. Lang Tong (Cornell U.), Prof. Dennis Goeckel, Prof. Nicholas Laneman, Prof. Francesco Verde (University of Naples), Prof. Elza Erkip (NYU poly), Prof. Shiv Panwar (NYU poly) Prof. Tara Javidi (UC San Diego), Prof. Kristi Morgansen (U. of Washington), Prof. Christophe Chamely, Boston University, Prof. Angelia Nedic (UIUC).

***Graduate Advisor*:**   Prof. S. Barbarossa (University of Rome),
Postdoctoral Advisor: Prof. G. B. Giannakis (University of Minnesota)

Teaching summary

Mentorship record
Postdoctoral and Research affiliates:

2014 – Masood Parvania -(Power Systems)

2011 – 2012 Dr. Tsung-Hui Cheng –(Signal Processing, Optimization) joined in 2012 National Taiwan University of Science and Technology as Assistant Professor

2008- to 2012 Dr. Zhifang Wang -(Power Systems) - joined in 2012 VSU as Assistant Professor

2008- to 2010 Dr. Ramy Tannious, (Information Theory) joined in 2011 Aviat Networks

2007-2008 Dr. Tuncer Can Aysal, (Signal Processing) joined in 2008 Weston Capital Management

Graduate Students:

2014 to present: Lorenzo Ferrari (Communications, Signal Processing), Mahdi Jamai (Power Systems)

2013 to present: Reinhard Gentz (Communications), To Wai Hoi (Signal Processing)

2009 to 2014: Mahnoosh Alizadeh (Power Systems), PhD thesis in August 2014,``Reduced Order Models for Load Management in Power Systems", Joined the group of Prof. Andrea Goldsmith as a Postdoctoral Scholar in Stanford.

2009 to 2014: Saeed Bagheri (Communications) PhD thesis in August 2014, ``Interference Resilient Techniques in Wireless Communications Systems", Joined Qualcomm.

2009 to 2013: Xiao Li, (Signal Processing, Power Systems) PhD thesis in December 2013," Large Scale Data Sensing, Inferences and Processing in Networks", Joined the group of Prof. Kannan Ramanchandran as Post-Doctoral Scholar at UC Berkeley

2008 to 2013: Lin Li, (Signal Processing) PhD thesis in December 2013, "Multi-agent Data Fusion: Subspace Model Discovery and Information Diffusion in Networks", joined ARL

2007 to 2013 Andrea Rueetschi, (Communications) PhD thesis in May 2013 "Receiver Architectures for Collision Free Cooperative Radios", joined ABB

2006 to 2010: Roberto Pagliari (Network science) PhD in May 2010, thesis "BIOLOGICALLY INSPIRED ALGORITHMS FOR WIRELESS SENSOR NETWORKS"), joined Qualcomm

2005 to 2011: Matthew Sharp (Communcation) (PhD in January 2011, thesis " PILOT SIGNAL DESIGN FOR ESTIMATION OF SPARSE CHANNELS WITH APPLICATION TO COOPERATIVE SYSTEMS"), joined Johns Hopkins University Applied Physics Laboratory

2005 to 2010: Ercan Yildiz (Signal Processing) (PhD in April 2010, thesis "INFORMATION DIFFUSION IN COMPLEX NETWORKS VIA GOSSIPING"), joined Accenture Technology Labs, now with Google

2005 to 2010: Shrut Kirti (Communication) (PhD in May 2010, thesis "COOPERATIVE PROTOCOLS IN DENSE WIRELESS NETWORKS FOR BROADCAST AND CONSENSUS"), joined as Technical Advisor the law firm Ropes & Gray LLP

2001 to 2006: Azadeh Vosoughi, (PhD in May 2006, thesis "Tracking and Equalizing channels in communication systems and data compression") joined the faculty at the University of Rochester in September 2006. She is currently Associate Professor at the University of Central Florida, since 2012.

2002 to 2006: Birsen Sirkeci (PhD in May 2006, thesis "Distributed Cooperative   Communications in Large Scale Wireless Networks"), a Postdoctoral Researcher at UC Berkley in 2007, she joined the faculty at San Jose' University in September 2007.

2001 to 2005: Yao-Win-Hong (PhD in August 2005, thesis "Data Driven Communications for Large Scale Wireless Sensor Networks") joined the faculty at National Tsing Hua University – NTHU - in Taiwan in 2005 where he is currently Full Professor.

Masters Students:

2012 to 2014: Georgia Koustandria (graduated in August 2014)

2012 to 2014: Irene Spanou (graduated in March 2014)

2008-2010: Stephen Lim (graduated in June 2010, UC Davis)

2001-2004: Atul Salhotra (graduated in January 2004, Cornell University)

2001-2003: Obianuju Ndili (graduated in August 2003, Cornell University)

2000-2001: Unal Sakoglu (graduated May 2001, University of New Mexico)

Masters of Engineering Students (one year degree at Cornell University)

graduated in May 2002: Gaelle Isabelle Protat, Rahul Kopikar, Francisco Rafael Bastistas

graduated in May 2003: Santiago Castillo, Luke Hejnar

graduated in August 2003: Dalia Burgos, Laura Hotca

graduated in Dicember 2003: Alan Tsui, Avik Sur

graduated in May 2005: Jade Lin

graduated in May 2006: Dennis Yueping Leung, Zheshen Zhuang

Undergraduate research

summer 2002: (Summer Project) Luke Hejnar, Yulin Wang

fall 2002: Honors Project Linda Pan, Olasubomi Oluwatobi Awe,

spring 2003: Marvin Chan, Eng Hwa Leonard Lim, Zhi Wei Kam

summer 2003: Lih Feng Cheow, Chihiro Fukami, Aman Chawla

fall 2004: Aman Chawla

spring 2004: Lih Feng Cheow, Abhijeet Agarwal

fall 2005: Bibo Xu

spring 2006: Jeff Woodworth

fall 2007: Eric Alexander Jarva

Summer 2009: David Perkins, Jalal Elidrissi, Chaoyi Ye

Courses taught

EEC 289 SmartGrid Networks
*Offered at **UC Davis**—Enrollment:* 7 Students in 2013

ENG 06 Engineering Problem Solving
*Offered at **UC Davis**—Enrollment:* 180 Students in 2012

EEC 161 Probability
*Offered at **UC Davis**—Enrollment: from 35 to 110* students in 2009-2014

EEC 260 Random Signals and Noise
*Offered at **UC Davis**—Enrollment:* 11 Students in 2011

EEC 265 Digital Communications
*Offered at **UC Davis**—Spring Quarter 2009; Enrollment:* 11 Students in 2010

EEC 289 Mobile Communications
*Offered at **UC Davis**—Winter Quarter 2009; Enrollment:* 11 Students in 2009

ECE 220 Signals and Systems
*Offered at **Cornell University**—September-December 2007; Enrollment:* 80 Students in 2007

ECE 567 EE 567 - Digital Communications
*Offered at **Cornell University**--January-May 2006-2008; Enrollment:* 20 Students in 2006, 10 Students in 2008

ECE 568 EE 568 - Mobile Communications
*Offered at **Cornell University**---September-December 2001/January-May 2003-2004-2005*
Enrollment: 11 Students 2001, 12 Students in 2003, 6 students in 2004, 6 students in 2005.

ECE 468- Telecommunication Systems II
*Offered at **Cornell University** -- January- May 2002; Enrollment: 30 students*

ECE 411 - Random Signals in Communications and Signal Processing
*Offered at **Cornell University** August –December 2003, 2004 and 2005; Enrollement: 30 students in 2003, 32 students in 2004, 52 students in 2005*

ENGRG 150 – Freshman Advising Seminar
*Offered at **Cornell University** August –December 2005; Enrollement: 16 students*

EE 595-091 - Digital Communications
*Offered at the **University of New Mexico** --- September-December 2000; Enrollment: 5 Students*

EE 595-011 - Spread Spectrum Communications
*Offered at the **University of New Mexico**---January-May 2001; Enrollment: 10 Students*

EE 3025 - Statistical methods in Electrical and Computer Engineering
*Offered at the **University of Minnesota** --- June-August 2001; Enrollment: 26 Students*

Service Activities

Service to Professional Societies

- Signal Processing Liason to the Smart Grid group in the Power Engineering Society, 2014
- Editor in Chief of the IEEE Signal Processing Letters, 2012 -2013
- Member of the Comsoc Fellow Evaluation committee 2013-2016
- Technical Co-Chair of GlobalSIP 2013
- Co-Guest Editor of the IEEE Journal on Selected Areas in Communications for the Smart Grid series. 2011-2012
- Co-Guest Editor of the IEEE Signal Processing Magazine on Signal Processing Techniques for the Smart Grid 2012
- Member of the Board of Governor of the IEEE Signal Processing Society since 2012
- Technical Committee Chair for the technical program of SmartgridComm 2012
- Technical Committee co-Chair for the Architectures and Models symposium at SmartgridComm 2011
- Co-Guest Editor of the IEEE Journal on Selected Areas in Signal Processing on "Network Gossiping Protocols, Design and Applications" with Mark Coates, Michael Gastpar, John Tsitsiklis and Martin Vetterli 2010
- Technical Committee co-Chair for the Architectures and Models symposium at SmartgridComm 2010
- Member of the SmartGridcomm conference steering committee
- Member of the IEEE COMSOC Ad-Hoc Technical Committee on Smart Grid. 2009
- Technical Committee co-Chair for the conference DCOSS 2010

- Area Editor for the IEEE Transactions on Signal Processing, 2010.

- Associate Editor for: IEEE Transactions on Signal Processing from 2008 to present and of the IEEE Transactions on Wireless Communications, from 2002 to 2005.

- Co-Guest Editor of the Communication Magazine Special Issue on Power Line Communications "Broadband is Power: Internet Access through the Power Line Networks" , May 2003

- General Co-chair of the IEEE workshop SPAWC 2005, New York City, June 05-08 2005

- Member of the

    o IEEE Signal Processing for Communications Committee, 2004-2009

    o IEEE Power Line Communications Committee, from 2005-2006.

- International Liason for the IEEE workshop SPAWC2004, Publicity Chair for the IEEE workshop SPAWC 2003, Registration Chair: ICASSP 2008.

- Reviewer for IEEE Transactions on SmartGrid, IEEE Transactions on Signal Processing, IEEE Transactions on Communications, IEEE Transactions on Wireless Communications, IEEE Transactions on Information Theory, IEEE Transactions on Vehicular Technology.

- Technical Committee Member for the IEEE Conferences ICC2003, Globecom2004, SPAWC 2004, ICASSP 2004 and 2005, IPSN 2005, ICASSP 2005, ISPL 2005, Globecom 2005, WirelessCom 2005, ISPL 2006, ICC 2006, Globecom 2006, Basenet 2006, ISPN 2006, ICASSP 2006, WCNC 2006, ISPL 2007, ICC 2007, ICASSP 2007, ISIT2007, SPAWC2008, ICC2008, SPAWC 09, iCASSP '09, VTC'09, Eusipco'09, ICC2009, Globecom2009, Infocom'09 and several later editions of these conferences.

- NSF Panel reviewer for CISE, FMF, Nets, CRI, EPAS (from 2002 to present), reviewer for ARO 2004 to present, reviewer for DOE 2012 to present

Membership
- Fellow member of the IEEE and member of the ASEE

University service
UC Davis:
Campus
- Member of the New Revenues College of Engineering Committee
- Member of the College of Engineering Undergraduate Development Committee
- Member of the Telecom Advisory Board (TAB) 2008-2009

Department
- Member of the Chair Hiring Committee 2012-2013
- Member of the Exam Committee, 2013
- Member of the Events Committee 2011-2013
- Member of the Undergraduate Program Committee 2010-2011-2012
- Chair of the Outreach and Enrichment Committee, 2009
- Member of the Merit and Promotion committee, 2009
- Member of the Graduate Committee, 2009
- Member of the Exam Committee, 2009

Cornell University:
Department
- Curriculum and Standards Committee, 2007
- Member of the Hiring Committee in the Systems area and of the Manager Hiring Committee, 2006
- Member of the General Hiring Committee, 2005
- Member of the Graduate Committee, 2003-2004-2005

University of New Mexico:
Department
- Member of Faculty Search Committee, 2001

Invited Lectures

1. **Plenary Speaker** at the 8th Sensor Array and Multichannel (SAM) Signal Processing symposium, Coruna, Spain, June 22-25, 2014. *"Modeling the Aggregator problem: the economic dispatch and dynamic scheduling of flexible electrical loads"*

2. **Keynote Speaker** at the International Symposium on Communication, Controls and Signal Processing, (ISCCSP) 2014, Athens, May 21-23, 2014. *"The Aggregator Problem in the Smart Grid"*

3. **Keynote Speaker** at the "International Conference on Intelligent Green Building and Smart Grid (IGBSG 2014)", Taipei, 23-25 April 2014. "A Decision Model Based on Encoding Load Flexibility for Demand Response".

4. **Keynote Speaker** at the KAUST-NSF Conference on Electronic Materials, Devices and Systems for Sustainable Future, talk: "The Smart Grid of Intelligent Appliances", Saudi Arabia, February 2014

5. **Keynote Speaker** at SmartGridComm 2013: "Networks and Markets for Scheduling Energy Consumption", Vancouver, October, 2013.

6. **Plenary Speaker** at the 10th International Symposium on Wireless Communication Systems (ISWCS 2013) "Networking Machines for Energy Management", Ilmenau, August, 2013

7. Invited Lecture at IMSE summer school on Multi-Agent Networked Systems, "Gossip-based Gauss Newton Algorithms with application to power grid state estimation form hybrid measurements", UIUC August 15-18, 2013

8. UIUC EE Colloquium, "Sensing and scheduling energy consumption in the Smart Grid", March 2013.

9. **Keynote speaker** at the Frontiers of Information Science and Technology (FIST) in Shanghai: "From Watts to Bits and Back: Mathematical Models to Manage Electrical Demand from Deferrable Loads", Shanghai, December, 2012

10. Invited lecture at the Santa Fe Institute for the workshop "Power Grids as Complex Networks: Formulating Problems for Useful Science and Science Based Engineering" talk entitled: "Cascading Overload Failures in Power Grid", Santa Fe, May 17-19, 2012.

11. Invited lecture at the workshop on "Optimization and Control for Smart Grids", titled: "Stochastic Models and Architecture for Predicting and Scheduling Electrical Vehicles Charges", Santa Fe, New Mexico, May 21-25, 2012.

12. **Keynote speaker** at the Workshop: "Toward the Smart Grid", talk title: "Why Information Networks Can Pave The Way To Green Electricity", Lehigh University, January 20, 2012.

13. CTW (Sitges, Spain), Special Session organizer for "Green Communications and the Smart Grid", lecture title: "Green communications & Smartgrid session: Digital Direct Load Scheduling", June 2011

14. CTTC (Barcelona, Spain), Bluecommunication workshop, "Digital Direct Load Scheduling", June 2011.

15. CTTC (Barcelona, Spain), SmartGrid workshop, "Sensor networking on the power grid: opportunities and challenges" February 2011.

16. MIT LIDS Colloquium seminar speaker "Directional Gossiping" November 2010.

17. **Plenary speaker** of the conference of IEEE Workshop ISPLC 2010, "Opportunistic Cooperation" Rio de Janeiro, Brazil, March 2010.

18. UC San Diego EE Colloquium, "An avalanche of help: analyzing cooperative broadcast schemes in the limit", May 2009

19. Caltech Colloquium, "An avalanche of help: analyzing cooperative broadcast schemes in the limit", March 2009

20. UC Berkeley EECS Colloquium, "Gossiping in Groups" October 2008

21. University of Naples, Federico II, Short Course for PhD candidates, "Precoding for Wireless Systems", February 2009

22. **Keynote speaker** of the conference of COLCOM'08, Popayan, Colombia, September 2008.

23. **Plenary speaker** of the conference Signal Processing Advances in Wireless Communications '08 (SPAWC'08), "The transmission of correlated information in networks and sensor systems", Recife, Brazil, July 2008.

24. Syracuse University EE Colloquium, "The decentralized estimation officers problem" February 6 2008

25. Philips Research, "Randomized Distributed Cooperation", July, 2007.

26. Brooklyn Polytechnic, EE Colloquium, "Randomized Distributed Cooperation", July, 2007.

27. University of Connecticut EE Colloquium, "Synchronization, computation and coordination in sensor systems", March 26, 2007.

28. IPAM workshop, "Data driven sensor access architectures for sensor networks" January 8, 2007

29. Telcordia Technologies, "Cooperative Communications in Mobile Ad-Hoc Networks: Rethinking the Link Abstraction", May 22, 2006

30. MIT-Stochastic Eigen-Analysis workshop, November 2005:

31. UC-San Diego "Content based Multiple Access: "Combining Source coding and Multiple Access for Scalable Sensor networks" 25-April -2005

32. Stanford Colloquium "Content based Multiple Access: "Combining Source coding and Multiple Access for Scalable Sensor networks" 08-February-2005

33. MIT Applied Math Colloquium "Application of the Theory of Random matrices in Information Systems and Data Processing", 25-October 2004

34. MIT –LIDS Colloquium: "Content based Multiple Access: Combining Source coding and Multiple Access for Scalable Sensor networks", 26-October 2004

35. ICCCP Panel "Future Challenges in Sensor Networks: The quest for scalability", 10 October 2004

36. "Distributed Multi-hop Sensor Networks: Cooperative Schemes for Data Compression and Modulation" University of Rome "La Sapienza", January 9, 2004

37. "Distributed Multi-hop Sensor Networks: Cooperative Schemes for Data Compression and Modulation" , Rochester Institute of Technology, January 27, 2004

38. "Distributed Multi-hop Sensor Networks: Cooperative Schemes for Data Compression and Modulation" New York Polytechnic, February 13, 2004

39. Corning Inc., Fiber Theory Group, Sullivan Park, 15 March 2004 "Cooperative wireless networks: a framework to improve the scalability of wireless multi-hop networks"

40. General Electric, Albany, 17 March 2004 "Energy-Efficient Cooperative Broadcasting and Synchronization Techniques for Large Scale Distributed Connectionless Networks"

41. North Carolina State University, February 21, 2003, "Signal Processing strategies for Broadcast Communications in Large Sensor Networks: the advantages of a Bottom-Up approach"

42. University of Texas Austin, March 8, 2001 , "The Statistics of Random Eigenvalues and Their Application to Space Time Coding and Multiple Access Channels"

43. Corning Inc., Fiber Theory Group, Sullivan Park November 2001, "An Overview on the state of the art in the design of Wireless Modems"

Publications

US Patents

1. Anna Scaglione, Yao-Win Hong: Methods and systems for cooperative transmission in multi-hop ad-hoc networks. Cornell Research Foundation May 2005: US 20050113084   (3 worldwide citation)
2. Anna Scaglione, Yao-Win Hong, Pramod K Varshney: Methods and systems for obtaining data from networks of sources. Cornell Research Foundation April 2011: US 7929411 (1 worldwide citation)
3. Birsen Sirkeci, Anna Scaglione: Methods and systems for space-time coding for distributed cooperative communicaton. Cornell University August 2009: US 20090207930   (1 worldwide citation)
4. Elza Erkip, Thnnasis Korakis, Pei Liu, Shivendra S Panwar, Anna Scaglione: Cooperative mac for rate adaptive randomized distributed space-time coding. January 2010: US 20100014453   (1worldwide citation)
5. Anna Scaglione, Yao-Win Hong: Methods and systems for cooperative transmission in multi-hop ad-hoc networks. Cornell Research Foundation February 2009: US 7493080   (1 worldwide citation)
6. Birsen Sirkeci, Anna Scaglione: Methods and systems for space-time coding for distributed cooperative communicaton. Cornell University July 2012: US 8233558
7. Elza Erkip, Thanasis Korakis, Pei Liu, Shivendra S Panwar, Anna Scaglione: Cooperative MAC for rate adaptive randomized distributed space-time coding. Polytechnic Institute of New York University July 2012: US 8228836
8. Anna Scaglione, Yao-Win Hong, Pramod K Varshney: Methods and systems for obtaining data from networks of sources. Cornell Research Foundation March 2007: US 20070071146

Contributions to Books

Book chapters

[B11] Zhifang Wang, Anna Scaglione, Robert J. Thomas, "Power Grid Network Analysis for Smart Grid Applications'' Smart Grids: Clouds, Communications, Open Source, and Automation edited by David Bakken, CRC Press.

[B10] Anna Scaglione, Zhifang Wang, Mahnoosh Alizadeh, contributed book chapter, "New models for networked control in Smart Grid", chapter 2 in Smart Grid Communications and Networking, edited by E. Hossain, Z. Han, and H. V. Poor, Cambridge University Press, 2011.

[B9] Zhifang Wang, Anna Scaglione, Robert J. Thomas, "Electrical Centrality Measures for Power Grids", in Control and Optimization Theory for Electric Smart Grids, edited by M. Ilic, and A. Chakrabortty, Springer, 2011.

[B8] Anna Scaglione, Yao-Win Hong and Birsen Sirkeci-Mergen, Part A, Chapter IV, Cooperative strategies in dense sensor networks" book edited by Gianluigi Ferrari, "Sensor Networks: Where Theory Meets Practice" Springer, 2009.

[B7] R. Pagliari and A. Scaglione, "Implementation of Average Consensus Protocols for Commercial Sensor Networks Platforms," in Grid Enabled Remote Instrumentation, edited by Franco Davoli, Norbert Meyer, Roberto Pugliese and Sandro Zappatore, Springer US, 2008. [PDF]

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