

GIORGIO QUER – CURRICULUM VITAE

Director of Artificial Intelligence, Senior Staff Scientist – Scripps Research Translational Institute

Distinguished Lecturer – IEEE Communication Society

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RESEARCH STRENGTHS

- **Digital Medicine:** application of Artificial Intelligence, Machine Learning and Signal Processing to take into account individual variability in genes, environment and lifestyle, promoting novel ways to disease treatment and prevention (publications: [J.15], [J.14], [J.8], [J.7], [J.4], [J.3], [J.2], [O.2], [O.2], [O.1]).
- **Wireless e-health signals and systems:** collection and processing of physiological signals (Bayesian analysis) from wearable devices to provide real-time biofeedback (publications: [J.11], [C.20], [C.18], [C.14], [C.12], [C.11], [C.10]).
- **Device-to-device communications:** design of D2D network solutions and their implementation using off-the-shelf devices (publications: [J.13], [J.6], [J.5], [J.1] [C.23], [C.21], [C.19], [C.17], [C.16]).
- **Cognitive wireless network:** design of cognitive networking techniques to solve networking problems at different layers of the protocol stack (MAC, network, transport) by extracting information from legacy data with Bayesian networks (publications: [J.10], [C.24], [C.15], [C.13], [C.9], [C.8], [C.5], [C.4]).
- **Internet of Things, from Wireless sensor networks to Smart Cities:** design of algorithms to compress large and distributed signals monitored by a WSN and recover them using compressive sensing and PCA (publications: [J.12], [J.9], [C.22], [C.7], [C.6], [C.3], [C.2], [C.1]).

RESEARCH EXPERIENCE

Research Scientist, Scripps Research Translational Institute (2017 – now)

Precision Medicine Initiative: direct volunteers' enrolment and engagement.

Data Analytics: analysis of big data from wearable sensors, EHR, insurance claim data.

Postdoctoral Researcher, University of California, San Diego (2011 – 2016)

Wireless networking: design and testing of novel network architectures.

Physiological signals analysis: real-time health systems.

Visiting Researcher, University of California, San Diego (2010)

Bayesian networks: Cognitive control of wireless networks.

Visiting Researcher, University of Oulu, Finland (2007)

Wireless sensor networks: Publish/Subscribe forwarding.

EDUCATION

- **Ph.D., Information Engineering, University of Padova, Italy (2008 – 11)**
"Optimization of Cognitive Wireless Networks using Compressive Sensing and Probabilistic Graphical Models."
- **M.S., Telecommunications Engineering, University of Padova, Italy (2005 – 07)**

“Cross Layer Publish/Subscribe Forwarding for Low Power and Delay Tolerant Wireless Sensor Networks,” 110/110 with honours.

- **B.S., Information Engineering, University of Padova, Italy** (2002 – 05): 110/110 with honours.
- **MicroMBA, Rady School of Management, University of California San Diego** (2018).

RESEARCH PROJECTS

Leader or co-Investigator in:

- **All of Us Research Program (AoURP), (2017 – now):**

The “All of Us” Research Program (AoURP) is a historic effort (sponsored by NIH) to gather data from 1+ million people living in the United States to accelerate research and improve health. By taking into account individual differences in lifestyle, environment, and biology, researchers will uncover paths toward delivering precision medicine. The idea is to disrupt the current practice of medicine, based on a one-size-fits-all approach, investigating individual differences (e.g., in drug response) thanks to an unprecedented amount of data (from medical records, physical measurements, or wireless sensor data). I am leading the Research and Analytics operations of the AoURP at Scripps, with the goal of (i) managing the data collection in the recruitment phase, (ii) analyzing this data to understand the efficacy of different recruitment strategies, and (iii) informing future decisions about recruitment and engagement strategies for the Direct Volunteers.

- **Machine Learning in Translational Digital Medicine (2017 – now):**

Collection and analysis of large wearable sensors datasets to detect new insights with machine learning techniques with the aim of changing clinical practice. The wearable devices include: home blood pressure monitoring, activity tracker, sleep tracker, cardiovascular signals (ECG, PPG, and resting heart rate) from different datasets for a total of 250 thousand individuals, as described in detail in my Research Statement. I am leading the analytical arm of these projects, recruiting and supervising students working with deep learning techniques and data science algorithms in the analysis of the data. Sponsored in part by NIH Clinical and Translational Science Awards.

- **E-Health and Internet of Things (2012 – 2017):**

Design a wearable system to collect and process physiological signals (heart rate variability) with Wavelets and Bayesian analysis, to provide a real-time biofeedback for behavioral modification (“Bliss Buzzer”, <http://bliss.calit2.net/>), sponsored by the Calit2 Strategic Research Opportunities Program (CSRO project titled “Cognitive healthcare: an enabling Android infrastructure”), approved by UCSD Human Research Protections Program (IRB). I was the co-PI in the CSRO project, where I have autonomously designed the project, and I have been leading the development of the system and of all the analytical techniques.

- **Cognitive Networking (2010 – 2016):**

Define a cross-layer protocol stack for the next generation of cognitive networks (ad hoc and 5G cellular networks), with probabilistic graphical models and their implementation in a wireless testbed (CARMEN), funded by ARO “Cognitive Opportunistic Communications and Cognitive Cross-layer Protocol Stack Design” (2009-11), “DURIP: CogMeshNet: A Cognitive Mesh Networking Testbed” (2011-12); “Cognitive Protocol Stack Design” (2011-15); and “Next Generation of Cognitive Networks: From Agile Radios to Smart Phones” industrial partners (2011-13). In these projects I have been key personnel responsible for the scientific part of the project,

and I have authored most of the corresponding academic products.

- **KACST (Saudi Arabia) collaboration (2015 – 2016):**

Center of Excellence for Telecom Applications, “CETA”, a joint program between the KACST, Saudi Arabia and UCSD with focus in Software Defined Networks and Internet of Things (e-Health). I was responsible for the supervision of several students involved in this project (from both UCSD and KACST).

- **Compressive Sensing and Wireless Sensor Networks (2008 – 2012):**

Design of algorithms to compress large signals for distributed storage and data dissemination schemes in a wireless sensor network (Internet of Things). Funded by “SENSEI” (Integrating the Physical with the Digital World of the Network of the Future) in the EU's 7th Framework Programme (2008-10); “MOSAICS” (MONitoring Sensor and Actuator networks through Integrated Compressive Sensing and data gathering) (2011); “Designing of distributed storage and data dissemination schemes for future wireless systems” in collaboration with DOCOMO EuroLabs (2008-09). These projects were part of my PhD program.

JOURNAL PUBLICATIONS

First author:

[J.15] **G. Quer**, N. Nikzad, A. Chieh, A. Normand, M. Vegreville, E.J. Topol, S.R. Steinhubl, “Home Monitoring of Blood Pressure: Short-Term Changes during Serial Measurements for 56398 Subjects”, in IEEE Journal of Biomedical and Health Informatics, Vol. 22, No. 5, pp. 1691–1698, Sep. 2018.

[J.14] **G. Quer**, E.D. Muse, N. Nikzad, E.J. Topol, S.R. Steinhubl, “Augmenting diagnostic vision with AI”, in The Lancet, Vol. 390, pp. 221, July 15, 2017.

[J.13] **G. Quer**, I. Pappalardo, B. Rao, M. Zorzi, “Proactive Caching Strategies in Heterogeneous Networks With Device-to-Device Communications,” in IEEE Transactions on Wireless Communications, Vol. 17, No. 8, pp. 5270–5281, Aug. 2018.

[J.12] **G. Quer**, T. Aktas, F. Librino, T. Javidi, R.R. Rao, “A Wireless Vehicle-based Mobile Network Infrastructure Designed for Smarter Cities,” *in preparation*.

[J.11] **G. Quer**, J. Daftari, R.R. Rao, “Heart Rate Wavelet Coherence Analysis to Investigate Group Entrainment,” Elsevier, Pervasive and Mobile Computing, vol. 28, pp. 21-34, June 2016.

[J.10] **G. Quer**, F. Librino, L. Canzian, L. Badia, M. Zorzi, “Inter-Network Cooperation exploiting Game Theory and Bayesian Networks,” in IEEE Transactions on Communications, Vol. 61, No. 10, pp. 4310–4321, Oct. 2013.

[J.9] **G. Quer**, R. Masiero, G. Pillonetto, M. Rossi, M. Zorzi, “Sensing, Compression and Recovery for WSNs: Sparse Signal Modeling and Monitoring Framework,” in IEEE Transactions on Wireless Communications, Vol. 11, No. 10, pp. 3447–3461, Oct. 2012.

Co-First author:

[J.8] P. Gouda*, **G. Quer***, E.J. Topol, S.R. Steinhubl “Exploring Resting Heart Rate and its Variation Over One Year in 48,212 Individuals,” *in preparation*.

[J.7] S.J. Jaiswal *, **G. Quer***, R. Owens, E.J. Topol, S.R. Steinhubl “Subjective vs. Objective, longitudinal sleep measurements in the United States,” *in preparation*.

Senior author:

[J.6] F. Librino, **G. Quer**, “Dynamic Cellular and D2D Communications: a Coexistence Strategy relying on Context Awareness,” in IEEE Transactions on Cognitive Communications and Networking, Vol. 4, No. 2, pp. 232–243, June 2018.

[J.5] F. Librino, **G. Quer**, “Channel, Mode and Power Optimization Schemes for non-Orthogonal D2D Communications: a Hybrid Approach,” *in preparation*.

[J.4] M. Gadaleta, M. Rossi, S.R. Steinhubl, **G. Quer**, “Deep Learning to Detect Atrial Fibrillation,” *in preparation*.

Other journals:

[J.3] R.L. Smith-Ray, N. Nikzad, T. Singh, J.Z. Jiang, M. Taitel, **G. Quer**, J. Cherry, G. Orr, S.R. Steinhubl, “Physical activity trends of 241,013 adults with chronic conditions participating in a digital health program,” *in preparation*.

[J.2] K. Kim, N. Nikzad, **G. Quer**, N. Wineinger, M. Vegreville, A. Chieh, A. Normand, N. Schmidt, E.J. Topol, S.R. Steinhubl, “Real World Home Blood Pressure Variability in Over 56,000 Individuals with nearly 17 Million Measurements,” in American Journal of Hypertension, Vol. 31, No. 5, pp. 566–573, Apr. 2018.

[J.1] M. Danieletto, **G. Quer**, R.R. Rao, M. Zorzi, “A Cognitive Networking Testbed on Android OS Devices,” in IEEE Communications magazine, vol. 52, no. 9, pp. 98-107, Sep. 2014.

CONFERENCE PUBLICATIONS

[C.24] H.C. Yu, **G. Quer**, R.R. Rao “Wireless SDN mobile ad hoc network: From theory to practice,” in IEEE ICC 2017, Paris, France, May, 2017.

[C.23] F. Librino, **G. Quer**, “On the Coexistence of D2D and Cellular Networks: an Optimal Distributed Approach,” in Information Theory and Applications Workshop, San Diego, CA, Feb., 2017.

[C.22] T. Aktas, **G. Quer**, T. Javidi, R.R. Rao, “From Connected Vehicles to Mobile Relays: Enhanced Wireless Infrastructure for Smarter Cities,” in IEEE GLOBECOM, Washington, DC, Dec., 2016.

[C.21] F. Librino, **G. Quer**, “D2D Communications in the Uplink: a Context-Aware Approach with Punishment,” in IEEE GLOBECOM, Washington, DC, Dec., 2016.

[C.20] **G. Quer**, A. Alasaad, and R.R. Rao, “On the Accuracy of Heart Rate Variability Measures from Undersampled RR Interval Time Series,” in IEEE GLOBECOM, Washington, DC, Dec. 2016.

[C.19] I. Pappalardo, **G. Quer**, B. Rao, M. Zorzi, “Caching strategies in Heterogeneous Networks with D2D, small BS and macro BS communications,” in IEEE ICC 2016, Kuala Lumpur, Malaysia, May 2016.

[C.18] **G. Quer**, M. Danieletto, “Matching Between Physiological Sensor and Smartphone based on RR Intervals Time Series,” in IEEE ICC 2015, ICT-enabled services and technologies for eHealth and Ambient Assisted Living workshop, London, UK, Jun. 2015.

[C.17] M. Mezzavilla, **G. Quer**, M. Zorzi, “On the Effects of Cognitive Mobility Prediction in Wireless Multi-hop Ad Hoc Networks,” in IEEE ICC 2014, Sydney, Australia, Jun 10-14, 2014.

[C.16] M. Danieletto, **G. Quer**, R.R. Rao, M. Zorzi, “On the Exploitation of the Android OS for the Design of a Wireless Mesh Network Testbed,” in IEEE MILCOM, San Diego, CA, Nov., 2013.

[C.15] B. Bojovic, **G. Quer**, N. Baldo, R.R. Rao, “Bayesian and Neural Network Schemes for Call

- Admission Control in LTE systems,” in IEEE GLOBECOM 2013, Atlanta, TX, Dec. 9–13, 2013.
- [C.14] **G. Quer**, A. Nwokafor, A. Ganguly, N. Rashid, J. Zhu, D. Navani, and R.R. Rao, “Bliss Buzzer, a System to Monitor Health and Stress with Real-time Feedback,” demo in ACM Sensys 2013, Rome, Italy, Nov. 2013.
- [C.13] F. Librino, **G. Quer**, and M. Zorzi, “Network-Aware Retransmission Strategy Selection in Ad Hoc Wireless Networks,” in IEEE ICC 2013 (CoCoNet workshop), Budapest, Hungary, Jun. 9–13, 2013.
- [C.12] **G. Quer**, R.R. Rao, “A Bayesian Model of Heart Rate to Reveal Real-time Physiological Information,” in IEEE Healthcom 2012, Beijing, China, Oct. 2012.
- [C.11] J. Daftari, **G. Quer**, and R.R. Rao, “Wavelet Coherence Reveals Entrainment of Heart Rate Variability Among People Involved in Group Activities,” in IEEE ICC 2012, Canada, Jun., 2012.
- [C.10] J. Daftari, **G. Quer**, and R.R. Rao, “Towards a Real-time Application to Reveal Entrainment Among People,” in IEEE ICC 2012 (MobiChESS), Ottawa, Canada, Jun., 2012.
- [C.9] **G. Quer**, F. Librino, L. Canzian, L. Badia, and M. Zorzi, “Using Game Theory and Bayesian Networks to Optimize Cooperation in Ad-Hoc Wireless Networks,” in IEEE ICC 2012, Ottawa, Canada, Jun. 2012.
- [C.8] **G. Quer**, N. Baldo, and M. Zorzi, “Cognitive Call Admission Control for VoIP over 802.11 using Bayesian Networks,” in IEEE GLOBECOM 2011, Houston, TX, Dec. 2011.
- [C.7] D. Zordan, **G. Quer**, M. Zorzi, and M. Rossi, “Modeling and Generation of Space-Time Correlated Signals for Sensor Network Fields,” in IEEE GLOBECOM, Houston, TX, Dec. 2011.
- [C.6] **G. Quer**, D. Zordan, R. Masiero, M. Zorzi, and M. Rossi, “WSN-Control: Signal Reconstruction through Compressive Sensing in Wireless Sensor Networks,” in IEEE Local Computer Networks (LCN) (SenseApp Workshop), Denver, CO, Oct. 2010.
- [C.5] **G. Quer**, H. Meenakshisundaram, B. Tamma, B.S. Manoj, R.R. Rao, and M. Zorzi, “Using Bayesian Networks for Cognitive Control of Multi-hop Wireless Networks,” in IEEE MILCOM 2010, San Jose, CA, Nov., 2010.
- [C.4] **G. Quer**, H. Meenakshisundaram, B. Tamma, B.S. Manoj, R.R. Rao, and M. Zorzi, “Cognitive Network Inference through Bayesian Network Analysis,” in IEEE GLOBECOM 2010, Miami, FL, Dec., 2010.
- [C.3] R. Masiero, **G. Quer**, M. Rossi, and M. Zorzi, “A Bayesian Analysis of Compressive Sensing Data Recovery in Wireless Sensor Networks,” in IEEE ICUMT (SASN workshop), Saint Petersburg, Russia, Oct. 2009.
- [C.2] R. Masiero, **G. Quer**, D. Munaretto, M. Rossi, J. Widmer, and M. Zorzi, “Data Acquisition through joint Compressive Sensing and Principal Component Analysis,” in IEEE GLOBECOM 2009, Honolulu, HI, Dec. 2009.
- [C.1] **G. Quer**, R. Masiero, D. Munaretto, M. Rossi, J. Widmer, and M. Zorzi, “On the Interplay Between Routing and Signal Representation for Compressive Sensing in Wireless Sensor Networks,” in Information Theory and Applications Workshop, UCSD, San Diego, CA, Feb. 2009.

OTHER PUBLICATIONS

- [O.4] M. Nguyen, E. Abdelmaguid, J. Huang, S. Kenchareddy, D. Singla, L. Wilke, M. Bobar, E. Carruth, D. Uys, I. Altintas, E. Muse, **G. Quer**, S. Steinhubl “Analytics Pipeline for Left Ventricle

Segmentation and Volume Estimation on Cardiac MRI using Deep Learning,” abstract in IEEE eScience, Amsterdam, the Netherlands, 2018.

[O.3] M. Gadaleta, M. Rossi, S.R. Steinhubl, **G. Quer** “Deep Learning to Detect Atrial Fibrillation from Short Noisy ECG Segments Measured with Wearable Sensors,” abstract at the American Heart Association’s Scientific Sessions, Chicago, IL, Nov. 2018.

[O.2] **G. Quer**, N. Nikzad, A. Chieh, A. Normand, M. Vegreville, E.J. Topol, S.R. Steinhubl “Short-term Decrease in Home Blood Pressure: Implications of Waiting Few Minutes,” abstract at the American Heart Association’s Scientific Sessions, Anaheim, CA, Nov. 2017.

[O.1] **G. Quer**, N. Nikzad, S. Lanka, R. van Mourik, O. Dur S.R. Steinhubl “Preliminary Evaluation of a Wrist Wearable Heart Rate Sensor for the Detection of Undiagnosed Atrial Fibrillation in a Real-World Setting,” abstract at the American Heart Association’s Scientific Sessions, Anaheim, CA, Nov. 2017.

TEACHING EXPERIENCE

- **Lecturer** (2 courses), “Data Meets Theory I” and “Workshop in Data Science,” Computer Science Engineering, University of California San Diego, Winter and Spring 2019.
- **Lecturer** (1 lecture), “Clinical Investigation: Research Using Existing Data,” The Scripps Research Institute, Fall 2017.
- **Lecturer** (full course), “Introduction to Machine Learning,” short course for KACST team visiting UC San Diego, Summer 2015.
- **Lecturer** (1 lecture), “Algorithmic Problem Solving,” UC San Diego, Summer Program for Incoming Students (SPIS) 2014 (topics covered: Backtracking and Dynamic Programming).
- **Teaching Assistant** (3 lectures), “Networks and Protocols laboratory,” University of Padova, Italy, 2009.
- **Lecturer** (1 lecture), “Wireless Systems and Networks,” University of Padova, Italy, 2009.

ADVISING EXPERIENCE

Mentor for:

- Kathrin McLaughlin and Codi Elliott (*undergraduate internship*, 2018), projects: “Machine learning analysis of wearable sensor data,” Scripps, 2018.
- Matteo Gadaleta (*international graduate student visiting TSRI*, 2017-18), project: “Deep Learning towards prediction of Atrial Fibrillation”.
- Michael Galarnyk (*program analyst TSRI*, 2017-18), “All of Us research project”.
- Emilia Copic and Vedant Jain (*undergraduate internship*, 2017), projects: “Wearable sensor and big physiological data,” Scripps, 2017.
- Hans C. Yu (*graduate student*, 2016), project: “Wireless SDN Mobile Ad Hoc Network”.
- K-12 students as part of the Mentor Assistance Program (MAP), UCSD, 2015-2016.
- 5 students (*visiting from KACST, Saudi Arabia*, summer 2015), projects: “Software Defined Networking” and “Internet of Things for e-Health”.
- Irene Pappalardo (*international graduate student visiting UCSD*, 2015), project: “Caching policies in 5G networks”.
- Dheeraj Navani (*undergraduate student*, summer 2011, 2013, 2014), project: “Bliss Android

system: data processing and performance evaluation”.

- Nafi Rashid (*graduate student*, 2013), project: “Bliss buzzer Android system: application architecture and data processing”.
- Biljana Bojovic (*international graduate student visiting UCSD*, fall 2012 – spring 2013), project: “Cognitive networking: probabilistic models for call admission control in LTE”.
- Matteo Danieletto (*international graduate student visiting UCSD*, fall 2012 – spring 2013, fall 2014), project: “Cognitive networking: an Android based testbed”.
- Desmond Vehar (*undergraduate student*, summer 2011, summer 2012), project: “Bliss buzzer Android system: user interface”.
- Joshal Daftari (*graduate student*, 2011-2012), project: “Healthware: wavelet coherence”.
- Davide Zordan (*graduate student*, University of Padova, Italy, 2010), M.S. thesis: “Application of the Nesterov’s algorithm to the Compressive sensing technique in WSNs,” in Italian.
- Alberto Menini (*graduate student*, University of Padova, Italy, 2009), M.S. thesis: “Compressive sensing techniques in Wireless sensor networks,” in Italian.

SEMINARS

[S.27] “Machine Learning in Digital Medicine,” IEEE ComSoc Distinguished Lecture Tour in Canada: Toronto, May 7; Kingston, May 8; Ottawa, May 9; and Montreal, May 10.

[S.26] “Cellular and Device-to-Device Networks Coexistence,” IEEE ComSoc Distinguished Lecture Tour in Canada: Kingston, May 8; Ottawa, May 9; and Montreal, May 10.

[S.25] “On the Detection of Atrial Fibrillation from ECG Signals with Deep Learning,” *talk* in Information Theory and Applications Workshop, San Diego, CA, Feb. 2018.

[S.24] “Machine Learning in Digital Medicine,” *talk* at the “Health monitoring in insurance: Unlocking the power of your customers’ data,” Swiss Re, Zurich, Switzerland, Dec. 2017.

[S.23] “Machine Learning: new insights from physiological datasets” *talk* in Walgreens, Chicago, IL, Nov. 2017.

[S.22] “Digital Medicine” *talk* at the University of Padova, Oct. 2017.

[S.21] “Artificial Intelligence: from Wireless Networks to Heart Rate Variability,” *talk* at The Scripps Research Institute, La Jolla, CA, Jan. 2017.

[S.20] “Context Awareness in the IoT: sensing, communications, and understanding,” *talk* in Bosch R&D, Palo Alto, CA, Oct. 2016.

[S.19] “An Enhanced Wireless Infrastructure for Smarter Cities: From Connected Vehicles to Mobile Relays,” *talk* for KACST, San Diego, CA, Aug. 2016.

[S.18] “From IoT sensors to information: Heart Rate Variability Accuracy,” *talk* for KACST, San Diego, CA, Aug. 2016.

[S.17] “Context Awareness: from Wireless Networks to Healthcare,” *talk* in Dexcom Data Engineering, San Diego, CA, Jul. 2016.

[S.16] “Context Awareness in 5G and IoT,” *talk* in Qualcomm R&D, San Diego, CA, May 2016.

[S.15] “Context Awareness in the IoT era,” *talk* in Intel R&D, San Jose, CA, Apr. 2016.

[S.14] “Context-aware D2D Communications with Punishment,” *talk* in Information Theory and Applications Workshop, San Diego, CA, Feb. 2016.

[S.13] “Context-aware D2D Communications with Punishment,” *talk* at CWC, UCSD, Oct. 2015.

[S.12] “Compressive Sensing for WSNs,” *talk* at KACST, Riyadh, Saudi Arabia, Apr. 2015.

- [S.11] “Introduction to Machine Learning,” *talk* at KACST, Riyadh, Saudi Arabia, Apr. 2015.
- [S.10] “Information in physiological signals,” *talk* at KACST, Riyadh, Saudi Arabia, Apr. 2015.
- [S.9] “Cognition-based systems: designing and testing the networks of the future,” *talk* at KACST, Riyadh, Saudi Arabia, Apr. 2015.
- [S.8] “Cognition-based systems: from wireless networks to healthcare,” *talk* at Consiglio Nazionale Ricerche (CNR), Pisa, Italy, Mar. 2015.
- [S.7] “Cognition-based systems: from wireless networks to healthcare,” *talk* in Qualcomm R&D, San Diego, CA, Sep. 2014.
- [S.6] “Inter-Network Cooperation exploiting Game Theory and Bayesian Networks,” *talk* in Information Theory and Applications Workshop, San Diego, CA, Feb. 2014.
- [S.5] “A Wireless Sensing System as a Window into the Autonomic Nervous System,” *talk* in Microsoft Research, Redmond, WA, Jan. 2014.
- [S.4] “Wireless Sensors as a Window into the Autonomic Nervous System,” *talk* in Centre Tecnològic Telecomunicacions Catalunya (CTTC), Barcelona, Spain, Sep. 2013.
- [S.3] “Wireless Sensors as a Window into the Autonomic Nervous System,” *talk* in University of Southern California (USC), Los Angeles, CA, Jul. 2013.
- [S.2] “Extracting real-time physiological information from wireless sensor signals,” *talk* in Information Theory and Applications Workshop, San Diego, CA, Feb. 2013.
- [S.1] “Compressive Sensing for Wireless Sensor Networks,” *talk* in IBM Research Lab, Zurich, Switzerland, Jan. 2011.

AWARDS

- 2018-2019 “IEEE Distinguished Lecturer,” for the IEEE Communication Society.
- 2016 “IEEE Senior Membership,” an honour bestowed only to those who have made significant contributions to the profession (top 9% of IEEE members).
- 2015 “IEEE Communications Letters Reviewer Appreciation Program” (exemplary reviewer, less than 3% of all reviewers in 2014) awarded by George K. Karagiannidis, Editor-in-Chief.
- 2012 Calit2 Strategic Research Opportunities Program 2012, UC San Diego.
- 2010 (6 months), Research Fellowship (Visiting Researcher) from UC San Diego.
- 2009 (Jun.), Travel Grant from University College of London for attending the Machine Learning Summer School 2009 at the University of Chicago.
- 2008 (3 years), PhD Fellowship from the Italian Ministry of University and Research (MIUR).
- 2007 (6 months), Erasmus Grant (EU Lifelong Learning Programme) for a period of study at the University of Oulu, Finland.
- 2001, “Complexity and Multiplicity of Thoughts and Knowledge”, Prize to participate to summer courses organized by Scuola Normale Superiore di Pisa, Italy.

PROFESSIONAL SERVICE

- **Review Panelist** for the National Science Foundation (NSF) and the National Institute for Health (NIH), 2018.
- **Symposium co-chair:**
IEEE GLOBECOM 2019, e-Health SAC.

IEEE GLOBECOM 2015, Communication QoS, Reliability, Modeling.

- **IEEE Distinguished Lecturer:**

IEEE DL tour in East Canada, May 7-10, 2018.

- **Technical Program Committee:** IEEE ICC 2014-18 (SAC Internet of Things, CQRM); IEEE Smartcity 2016 (workshop in conjunction with INFOCOM'16); IEEE GLOBECOM 2013-18 (SAC Internet of Things, SAC Big Data, e-Health, CQRM); IEEE ICNC 2015; MILCOM 2014; IEEE WCNC 2014, 2012 (Mobile & Wireless); IEEE RAICS 2013; IEEE MASS 2012.

- **Journal Reviewer:**

- Nature: (npj) Digital Medicine (in the Editorial Board)
 - IEEE: IEEE Trans. on Wireless Communications, IEEE Trans. on Communications, IEEE Trans. on Information Theory, IEEE Trans. on Mobile Computing, IEEE Trans. on Signal Processing, IEEE Trans. on Industrial Informatics, IEEE Trans. on Vehicular Technology, IEEE Trans. on Cognitive Communications and Networking, IEEE Trans. on Signal and Information Processing over Networks, IEEE Trans. Systems Man and Cybernetics, IEEE Communications Magazine, IEEE Wireless Communications Letters, IEEE Communications Letters
 - ACM: ACM Trans. on Sensor Networks
 - Elsevier: Ad Hoc Networks, Signal Processing, Computer Networks, Pervasive and Mobile Computing.
 - BMC Medicine
- IEEE ComSoc member (2005), IEEE Senior member (2016).

REFERENCES

Emails and phone numbers provided upon request.

1. Steven R. Steinhubl, Director of Digital Medicine, Scripps Translational Science Institute, the Scripps Research Institute, La Jolla, CA.
2. Ramesh R. Rao, Director, Calit2 (UCSD division); Professor, Electrical and Computer Engineering, University of California San Diego, CA.
3. Michele Zorzi, Professor, Department of Information Engineering, University of Padova, Italy.
4. Bhaskar D. Rao, Professor, Electrical and Computer Engineering, University of California San Diego, CA.
5. Tara Javidi, Professor, Electrical and Computer Engineering, University of California San Diego, CA.
6. Joerg Widmer, Research Professor (tenured), Institute IMDEA Networks, Madrid, Spain.