Personal Information

First name	Stefania
Surname	Sardellitti
Languages:	Italian mother tongue, English

Education

11-06-2021	National Academic Qualification as Associate Professor (Abilitazione Scientifica Nazionale (ASN) a professore universitario di Seconda Fascia) in the Sector 09/F2 - TELECOMMUNICATIONS
29-04-2005	(Ph.D.) in Electric and Information Engineering, Department of Information, Automation, Electromagnetism and Industrial Mathematics, University of Cassino, Italy.
Thesis:	Channel estimation and data decoding for MIMO wireless communications.
Advisor:	Prof. Marco Lops.
15-12-1998	M. Sc. in Electronic Engineering, University of Rome La Sapienza
Thesis:	Comparison of Multi-Carrier CDMA transmission systems.
Advisor:	Prof. Sergio Barbarossa.
Luglio 1989	High school diploma, Scientific Lyceum of Pontecorvo (FR), Italy.

Academic appointments

04-11-2019 al 03-11-2022	Untenured Assistant Professor (RTD A), Department of Information Engineering, Electronics, and Telecommunications, Sapienza University of Rome, Italy.
April 2017 – March 2018	Postdoctoral research associate (Assegnista di Ricerca), Research title "Optimization algorithms for 5G networks", Department of Information Engineering, Electronics, and Telecommunications, Sapienza University of Rome, Italy.
September 2011 – August 2016	Postdoctoral research associate (Assegnista di Ricerca), Research title "Algoritmi distribuiti per reti FEMTOCELL", Department of Information Engineering, Electronics, and Telecommunications, Sapienza University of Rome, Italy.
From 2007	Collaboration contracts (Co.co.co.), Department of Information Engineering, Electronics, and Telecommunications, Sapienza University of Rome, Italy.

Teaching

from 2019 to 2022	Teacher for the Course "Digital Transmission", Faculty of Information Engineering, University of Rome La Sapienza (Latina), for the academic years 2019-2020, 2020-2021, 2021-2022 and 2022-2023.
from 2020 to 2022	Teacher for the Ph.D. Course: "Convex optimization: Theory and Applications," Ph.D. in Information and Communication Technology (ICT), University of Rome La Sapienza
from 2014 to 2019	Teacher for the Course: "Images Transmission and Processing", Informatics and Telecommunications Engegneering, University of Cassino, Italy.
from 2009 to 2012	Teacher for the Course: "Reti Wireless Networks," Informatics and Telecommunications Engineering, University of Cassino, Italy.
from 2004 to 2008 and from 2012 to 2014	Teacher for the Course: "Digital Transmission II," Informatics and Telecommunications Engineering, University of Cassino.
A.A. 2006-2007	Teacher for the Course: "Digital Transmission II," M.Sc. in Telecommunications Engineering, University of Sannio, Benevento.
A.A. 2008-2009	Teacher for the Course: "Multiuser networks and space-time coding," M.Sc. in Telecommunications Engineering, University of Cassino, Italy.

Awards

June 2021	IEEE Signal Processing Society 2020 Best Paper Award for the journal: S. Sardellitti, G. Scutari and S. Barbarossa, "Joint Optimization of Radio and Computational Resources for Multicell Mobile-Edge Computing," IEEE Trans. on Signal and Information Process. over Networks, vol. 1, no. 2, pp. 89-103, June 2015
April 2015	IEEE Signal Processing Society 2014 Best Paper Award for the journal: S. Sardellitti, M. Giona, S. Barbarossa, "Fast distributed average consensus algorithms based on advection-diffusion processes," IEEE Trans. on Signal Process., vol. 58, no. 2, pp. 826-842, February 2010.

Research projects

-5G CONNI Private 5G Networks for Connected Industries, Horizon 2020 Program, joint project Europe/Taiwan, Nr. AMD-861459-3. Role: secondary investigator.

-RISE-6G Reconfigurable Intelligent Sustenaible Environments for 6G Wireless Networks, H2020 EU, Nr. 101017011 Ruolo: secondary investigator.

-5G-MiEdge, Millimeter-wave Edge Cloud as an Enabler for 5G Ecosystem, H2020 EUJ Project, Nr. 723171. Role: secondary investigator.

-TROPIC, Distributed computing, storage and radio resource allocation over cooperative femtocells, FP7 European Project, ICT-318784. Role: WP leader.

-ETARE, Enabling Technology for Advanced Radio in Europe, EDA Programme, B-0486-IAP4-ERG. Role: WP leader.

-FREEDOM, Femtocell-based network enhancement by interference management and coordination of information for seamless connectivity, FP7 European Project, ICT-248891. Role: secondary investigator

-WINSOC, Wireless sensor networks with self-organization capabilities for critical and emergency applications, FP6 European Project, IST-0033914. Role: secondary investigator

Editorial Activity and Affiliations

-Associate Editor of IEEE Transactions on Signal and Information Processing over Networks from 2022.

-Associate Editor of EURASIP Journal on Advances in Signal Processing (JASP) from 2020 and Lead Guest Editor for the EURASIP JASP Special Issue "Signal Processing over Higher Order Networks", 2022.

-IEEE Signal Processing Society Member from 2012.

-IEEE Society Member from 2022.

Talks

October 2020	"Joint optimization of radio and computational resources in mobile edge computing", IEEE Signal Processing Society Webinar.
June 2015	"Joint optimization of radio and computational resources in mobile cloud computing," Dept. of Information engineering, Electronics, and Telecommunications, Sapienza University of Rome.

Presentations at Conferences

-*IEEE International Conference on Acoustics, Speech, and Signal Processing (ICASSP 2022)*

-*Asilomar Conference on Signals, Systems and Computers, 2021*

-*IEEE International Conference on Acoustics, Speech, and Signal Processing (ICASSP 2021)*

-*13th International Conference on Sampling Theory and Applications (SampTA 2019)*

-*IEEE 3rd International Conference on Cloud Networing (CloudNet 2014).*

-IEEE International Conference on Acoustics, Speech, and Signal Processing (ICASSP 2014)

-IEEE Workshop on Signal Processing Advances in Wireless Communications, 2014

-European Signal Processing Conference (EUSIPCO 2013)

-Future Network and Mobile Summit (Funems 2013)

-IEEE Third Int. Workshop on Cognitive Inform. Process., 2012

-IEEE International Conference on Digital Signal Processing, 2011

-Cognitive Systems with Interactive Sensors (COGIS 2009)

-IEEE Signal Processing Advances in Wireless Communications (SPAWC 2009)

-10th IEEE International Symposium on Spread Spectrum Techniques and Applications (ISSSTA 2008)

-International Symposium on Information Theory and its Applications (ISITA 2004)

-IEEE Signal Processing Advances in Wireless Communications (SPAWC 2003)

-Third International Symposium on Image and Signal Processing and Analysis (ISPA 2003)

-37th Asilomar Conference on Signals, Systems and Computers, 2003

Research activity

Her primary research interests are in the areas of:
1. Topological signal processing
2. 5G Networks and Mobile-Edge Computing: optimal resources allocation
3. Wireless self-organizing, distributed and cognitive sensor networks
4. Distributed optimization and game theory
5. MIMO Multi-access communication systems

Journal

[J–1] M. Maman, E. Calvanese-Strinati, L.N. Dinh, et al., "Beyond private 5G networks: applications, architectures, operator models and technological enablers," EURASIP Journal on Wireless Communications and Networking, 195, 2021.

[J–2] S. Barbarossa, S. Sardellitti, "Topological Signal Processing: Making Sense of Data Building on Multiway Relations," IEEE Signal Processing Magazine, vol. 37, no. 6, pp. 174-183, November 2020.

[J–3] S. Barbarossa, S. Sardellitti, "Topological Signal Processing over Simplicial Complexes," IEEE Transactions on Signal Processing, 2020.

[J–4] P. Di Lorenzo, S. Barbarossa, and S. Sardellitti, "Distributed Signal Processing and Optimization based on In-Network Subspace Projections," IEEE Transactions on Signal Processing, 2020.

[J–5] S. Sardellitti, S. Barbarossa and P. D. Lorenzo, "Graph Topology Inference Based on Sparsifying Transform Learning," IEEE Transactions on Signal Processing, vol. 67, no. 7, pp. 1712-1727, Apr. 2019.

[J–6] S. Sardellitti, S. Barbarossa, P. Di Lorenzo, "On the Graph Fourier Transform for Directed Graphs," IEEE Journal of Selected Topics in Signal Processing, vol. 11, no. 6, pp. 796-811, Sept. 2017.

[J–7] P. Di Lorenzo, P. Banelli, S. Barbarossa, and S. Sardellitti, "Distributed Adaptive Learning of Graph Signals," IEEE Transactions on Signal Processing, vol. 65, no. 16, pp. 4193-4208, Aug. 2017.

[J–8] G. Scutari, F. Facchinei, L. Lampariello, S. Sardellitti, and P. Song, "Parallel and Distributed Methods for Nonconvex Optimization-Part II: Applications in Communications and Machine Learning," IEEE Trans. on Signal Processing, vol. 65, pp. 1945-1960, April 2017.

[J–9] P. Di Lorenzo, S. Barbarossa, P. Banelli, and S. Sardellitti, "Adaptive least mean squares estimation of graph signals," IEEE Transactions on Signal and Information Processing over Networks, vol. 2, no.4, Dec. 2016.

[J–10]	S. Sardellitti, G. Scutari and S. Barbarossa, "Joint optimization of radio and computational resources for multicell mobile-edge computing," IEEE Trans. on Signal and Information Processing over Networks, vol. 1, no. 2, pp. 89-103, June 2015. **2020 IEEE Signal Processing Society Best Paper Award. Top hundred downloaded article from overall IEEE website, Novembre-Dicembre 2014**.
[J–11]	S. Barbarossa, S. Sardellitti, and P. Di Lorenzo, "Communicating while computing: Distributed cloud computing over 5G heterogeneous networks," IEEE Signal Processing Magazine, vol. 31, no 6, pp. 45-55, November 2014, Special Issue on Signal Processing for the 5G Revolution. **Top ten downloaded article from IEEE Signal Processing Magazine, Novembre-Dicembre 2014**.
[J–12]	S. Sardellitti, M. Giona, S. Barbarossa, "Fast distributed average consensus algorithms based on advection-diffusion processes," IEEE Trans. on Signal Process., vol. 58, no. 2, pp. 826-842, February 2010. **2014 IEEE Signal Processing Society Best Paper Award.**
[J–13]	S. Sardellitti, S. Barbarossa, "Joint optimization of collaborative sensing and radio resource allocation in small-cell networks," IEEE Trans. on Signal Processing, vol. 61, no. 18, pp. 4506-4520, Sept. 2013.
[J–14]	S. Sardellitti, S. Barbarossa, A. Swami, "Optimal topology control and power allocation for minimum energy consumption in consensus networks," IEEE Trans. on Signal Process., vol. 60, no.1, pp. 383-399, January 2012.
[J–15]	S. Sardellitti, A. Carfagna, S. Barbarossa, "Optimal resource allocation in femtocell networks based on Markov modeling of interference activity," EURASIP Journal on Wireless Communications and Networking, December 2012.

Book chapters

[BC–1]	S. Barbarossa, S. Sardellitti, E. Ceci and M. Merluzzi, "The edge cloud: A holistic view of communication, computation and caching," in Cooperative and Graph Signal Processing: Principles and Applications (P.M. Djuric and C. Richard, Eds.), Amsterdam, Netherlands: Elsevier, 2018.
[BC–2]	S. Barbarossa, S. Sardellitti, and P. Di Lorenzo, "Distributed Detection and Estimation in Wireless Sensor Networks," In Rama Chellappa and Sergios Theodoridis eds., Academic Press Library in Signal Processing, vol. 2, pp. 329-408, Oct. 2013.
[BC–3]	S. Buzzi, M. Lops, S. Sardellitti, "Further results on Cramer-Rao bounds for parameter estimation in long-code DS/CDMA systems," *IEEE Trans. on Signal Process.*, vol. 53, pp. 1216–1221, March 2005, incluso nel capitolo "Part III Hybrid Bayesian Bounds" del libro di Harry L. Van Trees, Kristine L. Bell, *Bayesian Bounds for Parameter Estimation and Nonlinear Filtering/Tracking*, John Wiley & Sons, IEEE Press, 2007.

Conference Proceedings

[C–1]	S. Sardellitti, S. Barbarossa, "Robust Signal Processing over Simplicial Complexes", *Proc. of IEEE ICASSP*, Singapore, May 2022. (Invited paper).
[C–2]	S. Sardellitti, S. Barbarossa, L. Testa, "Topological Signal Processing over Cell Complexes," *Proc. IEEE Asilomar Conf. Signals, Systems and Computers*, Nov. 2021.
[C–3]	S. Sardellitti, S. Barbarossa, P. Di Lorenzo, "Online Learning of Time-Varying Signals and Graphs", *Proc. of IEEE ICASSP*, 2021.
[C–4]	P. Di Lorenzo, S. Barbarossa, and S. Sardellitti, "Distributed Adaptive Learning of Graph Processes via In-Network Subspace Projections", *Proc. of the Asilomar Conference on Signals, Systems and Computers*, Pacific Grove, Nov. 2019.
[C–5]	S. Sardellitti, S. Barbarossa, P. Di Lorenzo, "Enabling Prediction via Multi-Layer Graph Inference and Sampling,"*Proc. of SampTA 2019*, July 8-12, Bordeaux, France. (Invited paper)
[C–6]	P. Di Lorenzo, S. Barbarossa, S. Sardellitti, "Distributed signal recovery based on in-network subspace projections,"*Proc. of ICASSP 2019*, 12-17 May 2019, Brighton, UK.
[C–7]	S. Sardellitti, F. Di Costanzo, M. Merluzzi, "Joint optimization of caching and transport in proactive edge cloud," *Proc. of 26th European Signal Process. Conf. (EUSIPCO)*, Rome, Italy, 3-7 Sept. 2018.

[C–8]	S. Sardellitti, M. Merluzzi, S. Barbarossa, "Optimal association of mobile users to multi-access edge computing resources," *Proc. of in Proc. of ICC Workshops (WDN-5G)*, 2018.
[C–9]	S. Barbarossa, S. Sardellitti, E. Ceci, "Learning from signals defined over simplicial complexes," *Proc. of IEEE Data Science Workshop (DSW)*, Lausanne, Switzerland, 4-6 June, 2018.
[C–10]	S. Sardellitti, S. Barbarossa, P. Di Lorenzo, "Graph Fourier Transform for Directed Graphs based on Lovàsz Extension of Min-Cut," IEEE ICASSP, New Orleans, USA, 2017.
[C–11]	S. Sardellitti, S. Barbarossa, and P. Di Lorenzo, "Graph topology inference based on transform learning," *Proc. of IEEE GlobalSIP*, Washington, Dec. 2016. (Invited paper).
[C–12]	P. Di Lorenzo, P. Banelli, S. Barbarossa, and S. Sardellitti, "Distributed adaptive learning of signals defined over graphs," *Proc. of Asilomar Conference on Signals, Systems, and Computers*, Pacific Grove, Nov. 2016. (Invited paper)
[C–13]	P. Di Lorenzo, S. Barbarossa, P. Banelli, and S. Sardellitti, "LMS estimation of signals defined over graphs," *Proc. of European Signal Processing Conference*, Budapest, Hungary, Aug.-Sept. 2016.
[C–14]	S. Barbarossa, S. Sardellitti, A. Farina, "On sparse controllability of graph signals," *Proc. of ICASSP 2016*, Shanghai, Cina, March 2016.
[C–15]	J. Oueis, E. Calvanese Striniati, S. Sardellitti, S. Barbarossa, "Small cell clustering for efficient distributed fog computing: A multi-user case," *IEEE Vehicular Technology Conference (VTC-Fall)*, Boston, USA, September 2015.
[C–16]	S. Sardellitti, S. Barbarossa, G. Scutari, "Distributed mobile cloud computing: Joint optimization of radio and computational resources," *Globecom 2014 Workshop-WONC*, Austin, Tx USA, December 2014.
[C–17]	S. Sardellitti, S. Barbarossa, G. Scutari, "Distributed joint optimization of radio and computational resources for mobile cloud computing", *IEEE 3rd International Conference on Cloud Networing (CloudNet)*, October 2014.
[C–18]	S. Sardellitti, G. Scutari and S. Barbarossa, "Joint cell selection and radio resource allocations in MIMO small cell networks via successive convex approximation," in Proc. of IEEE ICASSP, Florence, Italy, May 2014.
[C–19]	S. Sardellitti, G. Scutari and S. Barbarossa, "Joint optimization of radio and computational resources for multicell mobile cloud computing," in Proc. of SPAWC 2014 (invited paper).
[C–20]	S. Barbarossa, P. Di Lorenzo, and S. Sardellitti, "Computation offloading strategies based on energy minimization under computational rate constraints," in Proc. of European Conference on Networks and Communications, EUCNC 2014, Bologna, Italy, June 2014.
[C–21]	S. Barbarossa, S. Sardellitti and P. Di Lorenzo, "Joint allocation of computation and communication resources in multiuser mobile cloud computing," in Proc. of SPAWC, Darmstadt, June 2013.
[C–22]	S. Barbarossa, S. Sardellitti and P. Di Lorenzo, "Computation offloading for mobile cloud computing based on wide cross-layer optimization," in Proc. of the Future Network and Mobile Summit (Funems), Lisbon, July 2013.
[C–23]	S. Sardellitti, S. Barbarossa, "Distributed RLS estimation for cooperative sensing in small cell networks," in Proc. of IEEE Int. Conf. on Acoustics, Speech and Signal Process., ICASSP, Vancouver, May 2013.
[C–24]	S. Barbarossa and S. Sardellitti, "Optimal bit and power allocation for rate-constrained decentralized detection and estimation," in Proc. of EUSIPCO, Marrakech, Sept. 2013.
[C–25]	S. Barbarossa, S. Sardellitti, "Joint optimization of sensing and radio resource allocation in collaborative femtocell networks," INVITED paper to the Third Int. Workshop on Cognitive Inform. Process. (CIP), Spain, May 2012.
[C–26]	S. Sardellitti, S. Barbarossa, "Energy preserving matching of sensor network topology to dependency graph of the observed field," INVITED paper a *17th International Conference on Digital Signal Processing (DSP)*, 2011.

[C–27]	S. Barbarossa, S. Sardellitti, A. Carfagna, "Pricing mechanisms for interference management games in femtocell networks based on Markov modeling," *Proc. of the Future Network and MobileSummit Conference*, Warsaw, June 2011.
[C–28]	S. Barbarossa, A. Carfagna, S. Sardellitti, M. Omilipo, L. Pescosolido, "Optimal radio access in femtocell networks based on Markov modeling of interferers' activity," *Proc. of the International Conference on Acoustics, Speech and Signal Processing, (ICASSP 2011)*, pp. 3212-3215, Prague, May 2011.
[C–29]	S. Sardellitti, S. Barbarossa and A. Swami, "Average consensus with minimum energy consumption: Optimal topology and power allocation,"*Proc. of the European Signal Processing Conference (EUSIPCO 2010)*, pp. 189-193, Aalborg, Denmark, August 2010.
[C–30]	S. Barbarossa, S. Sardellitti, A. Carfagna, P. Vecchiarelli, "Decentralized interference management in femtocells: A game-theoretic approach," *Proc. of the IEEE 5th Int. Conf. on Cognitive Radio Oriented Wireless Networks and Commun.*, Cannes, France, June 2010 (INVITED paper).
[C–31]	S. Barbarossa, S. Sardellitti, G. Scutari, "Joint optimization of detection thresholds and power allocation for opportunistic access in multicarrier cognitive radio networks," *Proc. of the IEEE Computational Advances in Multi-Sensor Adaptive Processing (CAMSAP 2009)*, pp. 404-407, Aruba, December 2009 (INVITED paper).
[C–32]	S. Barbarossa, S. Sardellitti, G. Scutari, "Joint optimization of detection thresholds and power allocation in multiuser wideband cognitive radios," *Cognitive Systems with Interactive Sensors (COGIS 2009)*, Paris, November 2009 (INVITED paper).
[C–33]	S. Sardellitti, S. Barbarossa, L. Pezzolo, "Distributed double threshold spatial detection algorithms in wireless sensor networks," *Proc. of the IEEE Signal Proc. Advances in Wireless Communications (SPAWC 2009)*, pp. 51-55, Perugia, Italy, June 2009.
[C–34]	S. Barbarossa, T. Battisti, L. Pescosolido, S. Sardellitti, G. Scutari, "Distributed processing algorithms for wireless sensor networks having fast convergence and robustness against coupling noise," *Proc. of the 10th IEEE Int. Symposium on Spread Spectrum Techniques and Applications (ISSSTA 2008)*, Bologna, Italy, August 2008 (INVITED paper).
[C–35]	S. Sardellitti, M. Giona and S. Barbarossa, "Fast Distributed Consensus Algorithms Based on Advection-Diffusion Processes," *Proc. of the fifth IEEE Sensor Array and Multichannel Signal Processing Workshop (SAM 2008)*, pp. 266-270, Darmstadt, Germany, July 2008.
[C–36]	S. Buzzi, S. Sardellitti, "Iterative (Turbo) Joint Rate and Data Detection in Coded CDMA Networks," *Pupolin S. (Eds) Wireless Communications 2007 CNIT Thyrrenian Symposium. Signals and Communication Technology.* Springer, Boston, MA, 2007.
[C–37]	S. Buzzi, M. Lops, S. Sardellitti, "Performance of iterative data detection and channel estimation for single-antenna and multi-antennas wireless communications," *Proc. of the 37th Asilomar Conference on Signals, Systems and Computers*, Pacific Grove, CA, Vol. 1, pp. 963-967, November 2003.
[C–38]	S. Buzzi, M. Lops, S. Sardellitti, "Performance of iterative data detection and channel estimation strategies over coded MIMO channels," *Proc. of the International Symposium on Information Theory and its Applications (ISITA 2004)*, Parma, Italy, October 2004.
[C–39]	S. Buzzi and S. Sardellitti, "Blind MMSE-based receivers for Rate and Data Detection in Variable-Rate CDMA Systems," *Proc. of the 14th European Signal Processing Conference (EUSIPCO 2006)*, Florence, Italy, September 2006.
[C–40]	S. Buzzi and S. Sardellitti, "Joint rate and data detection in variable-rate CDMA systems," *Proc. of the IEEE Radio and Wireless Symposium (RWS 2006)*, San Diego, CA, pp. 367-370, January 2006.
[C–41]	S. Buzzi, M. Lops, S. Sardellitti, "Further results on Cramér-Rao bounds for parameter estimation in long-code DS/CDMA systems," *Proc. of the 38th Annual Conference on Information Sciences and Systems (CISS 2004)*, Princeton University, Princeton, NJ, March 2004.
[C–42]	S. Buzzi, M. Lops, S. Sardellitti, "Improved receivers for layered space-time wireless communications with BPSK modulation," *Proc. of the 3rd International Symposium on Image and Signal Processing and Analysis (ISPA 2003)*, Rome, Italy, Vol.2, pp. 1153-1158, September 2003.

[C–43] S. Buzzi, M. Lops, S. Sardellitti, "Iterative data detection and channel estimation for multi-antenna wireless communications," *Proc. of the IEEE Signal Proc. Advances in Wireless Communication (SPAWC 2003)*, Rome, Italy, pp. 467-471, June 2003.

Dissertazioni

S. Sardellitti, *Confronto di sistemi di trasmissione MC-CDMA*, Tesi di Laurea in Ingegneria Elettronica presso l'Università degli Studi di Roma "La Sapienza", Dicembre 1998.

S. Sardellitti, *Channel Estimation and Data Decoding for MIMO Wireless Communications*, Tesi di Dottorato in Ingegneria Elettrica e dell'Informazione, Università degli Studi di Cassino, Novembre 2004.

Rome, 16-11-2022   Curriculum ai fini della pubblicazione

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