

Loris Cannelli

PERSONAL INFORMATION	Date of birth: 04/18/1988 Nationality: Italian Gender: Male
CONTACT INFORMATION	Phone: +41-765-155379 Email: loris.cannelli@supsi.ch Address: Via A. Riva 14, Lugano, Switzerland, 6900
CURRENT POSITION	Researcher at Dalle Molle Institute for Artificial Intelligence, IDSIA/SUPSI, 2019-present Polo universitario Lugano - Campus Est, Via la Santa 1, CH-6962 Lugano - Viganello, Switzerland
RESEARCH INTERESTS	Big Data Analytics and Machine Learning Distributed nonconvex optimization over multi-agent networks Asynchronous and parallel nonconvex optimization Parallel Magnetic Resonance Imaging Reconstruction Signal Processing and Wireless Communications
EDUCATIONAL RECORDS	PhD degree in Industrial Engineering, 2015 - 2019 School of Industrial Engineering, Purdue University, West Lafayette, USA PhD advisor: Dr. Gesualdo Scutari • Dissertation: “Asynchronous Parallel Algorithms for Big-Data Nonconvex Optimization” MSc Degree in Electrical Engineering, 2014 - 2015 University at Buffalo, the State University of New York, Buffalo, USA MSc degree in Electrical and Telecommunications Engineering. Grade: 110/110 summa cum laude, 2010 - 2013 University of Perugia, Perugia, Italy • Thesis: “MIMO Transceiver Design for MSML Underwater Acoustic Channels” BSc degree in Computer Science and Electronic Engineering. Grade: 110/110 summa cum laude, 2007 - 2010 University of Perugia, Perugia, Italy • Thesis: “Cooperative spectrum sensing in Cognitive Radio using double-threshold approach”
WORK EXPERIENCES	Internship in U.S. Army Research Laboratory (USA), May 2016 - July 2016 Army Research Laboratory Computational and Information Sciences Directorate, MD, USA Research and Teaching Assistant in Department of Electrical Engineering at SUNY (USA), 2014 - 2015 University at Buffalo, the State University of New York Buffalo, NY, 14260, USA Internship in Department of Electronics and Information Engineering at University of Perugia (Italy), 2013 - 2014 Faculty of Engineering University of Perugia, Perugia, Italy • Feasibility study for an underwater acoustic modem • Study, design and implementation of a wireless underwater communication system. Internship in Department of Microelectronics at TU Delft (The Netherlands), 2012 - 2013

Delft University of Technology (TU Delft)

Delft, The Netherlands

- Analysis, design and test of wireless communication systems for underwater channels
- Analysis of underwater channels under the framework of the European RACUN project

PUBLICATIONS

- K. Slavakis, G. Shetty, L. Cannelli, G. Scutari, U. Nakarmi, L. Ying, “*Kernel regression imputation in manifolds via bi-linear modeling: The dynamic-mri case*”, IEEE Transactions on Computational Imaging, 2022
- L. Cannelli, F. Facchinei, G. Scutari, V. Kungurtsev, “*Asynchronous Optimization over Graphs: Linear Convergence under Error Bound Conditions*”, IEEE Transactions on Automatic Control, 2020
- L. Cannelli, F. Facchinei, V. Kungurtsev, G. Scutari, “*Asynchronous Parallel Algorithms for Nonconvex Optimization*”, Mathematical Programming, 2019, DOI 10.1007/s10107-019-01408-w
- L. Cannelli, F. Facchinei, G. Scutari, “*Multi-Agent Asynchronous Nonconvex Large-Scale Optimization*”. Proc. of 2017 IEEE workshop on Computational Advances in Multi-Sensor Adaptive Processing (CAMSAP17), Curaçao, Dutch Antilles
- L. Cannelli, F. Facchinei, V. Kungurtsev, G. Scutari, “*Essentially cyclic asynchronous non-convex large-scale optimization*”. 2017 IEEE 18th International Workshop on Signal Processing Advances in Wireless Communications (SPAWC), Sapporo, Japan
Best Paper Award Runner-up
- L. Cannelli, F. Facchinei, V. Kungurtsev, G. Scutari, “*Asynchronous Parallel Nonconvex Large-Scale Optimization*”. 2017 IEEE 42nd International Conference on Acoustics, Speech and Signal Processing, New Orleans, LA, USA
- L. Cannelli, G. Scutari, F. Facchinei, V. Kungurtsev, “*Parallel asynchronous lock-free algorithms for nonconvex big-data optimization*”. 2016 IEEE 50th Asilomar Conference on Signals, Systems and Computers, the Asilomar Grounds, Pacific Grove, CA, USA
Best Paper Award Runner-up
- L. Cannelli, P. Scarponi, G. Scutari, L. Ying, “*A Parallel Algorithm for Compressed Sensing Dynamic MRI Reconstruction*”. 2015 Proc Int Soc Magn Reson Med Sci Meet Exhib Int Soc, Toronto, Canada
- L. Cannelli, G. Leus, H. Dol, P. van Walree, “*Adaptive turbo equalization for underwater acoustic communications*”. 2013 MTS/IEEE, OCEANS, Bergen, Norway

GRANTS, AWARDS AND MEMBERSHIPS

- 2021: Hasler Stiftung funds my research project “*Parallel Algorithms for RealTime Magnetic Resonance Imaging Reconstruction*”
- Third place in IEGSO 2017 poster competition at Purdue University, IN. L. Cannelli, G. Scutari. “*Fast Parallel Algorithms for Real-Time Dynamic MRI*”
- Winner of 2015 poster competition in the Department of Electrical Engineering at University of Buffalo, NY. Poster: L. Cannelli, P. Scarponi, G. Scutari, L. Ying, “*A parallel algorithm for fast MRI reconstruction*”
- ISMRM Trainee Member
- IEEE Member
- IEEE Signal Processing Society Member

TEACHING ACTIVITY

- **Machine Learning:** Teacher; SUPSI; course responsible: Alessandro Giusti; 4 hrs/week; 2019/2020 - currently
- **Multi-Agent Systems:** Teaching Assistant; SUPSI; course responsible: Alessandro Facchini; 3 hrs/week; 2019/2020 - currently

- **Data Science:** Teaching Assistant; SUPSI; course responsible: Alessandro Giusti; 3 hrs/week; 2020/2021 - currently
- **Optimization:** Teaching Assistant; Purdue University; course responsible: Chris Quinn; 3hrs/week; 2015/2016
- **Multi-Agent Optimization for Engineering:** Teaching Assistant; SUNY at Buffalo; course responsible: Gesualdo Scutari; 3hrs/week; 2014/2015
- **Communication Systems II:** Teaching Assistant; SUNY at Buffalo; course responsible: Dimitris Pados; 3hrs/week; 2014/2015
- **Electronic Devices and Circuits II:** Teaching Assistant; SUNY at Buffalo; course responsible: Victor Pogrebnyak; 3hrs/week; 2013/2014

TECHNICAL SKILLS *Coding languages:* Python (Tensorflow), MATLAB, C, C++
Operating systems: Windows, Linux
Other software: Office, Latex
 Parallel programming
 Algorithmic design
 Design and simulation of communication systems
 Design and simulation of underwater communication systems

SUMMER SCHOOLS • Summer School on Optimization, Big data and Applications (OBA), 2017, Veroli, Italy
 • IEEE Italy Section Summer School - Advanced course for graduated students and industrial research, June 2015, Perugia, Italy

GRADUATE COURSEWORK • *Purdue University*
 CS590 Machine Learning Theory Seminar (J. Honorio). IE690 Stochastic Systems Modeling (H. Honnappa). IE538 Nonlinear Optimization Algorithms and Models (A. Liu). ECE695 Sparse Representations and Signal Recovery (S. H. Chan). CS578 Statistical Machine Learning (J. Honorio). IE690 Mathematics of Data Science (V. Aggarwal). STAT529 Applied Bayesian Decision Theory (J. Deely). IE581 Simulation Design and Analysis (S. Hunter) IE577 Human Factors in Engineering (R. W. Proctor). IE579 Design and Control of Production and Manufacturing Systems (S. Y. Nof)
 • *University at Buffalo, the State University of New York*
 CSE 574 Introduction to Machine Learning (V. Chandola). EE614 Smart Antennas (D. Pados). EE701 Optimization for Engineering (G. Scutari). EE560 Introduction to MRI (L. Ying). CSE675 Stochastic Simulation and Inference (W. Dong). EE634 Principles of Information Theory and Coding (M. Langberg)
 • *University of Perugia*
 Antennas (M. Mongiardo). Digital Signal Processing (F. Frescura). Processes Control (M. Boccadoro). Mathematical Methods for Information (P. Brandi). Radiofrequency Circuit Design (R. Sorrentino). Sensors and Distributed Measurement Systems (A. Scorzoni). Embedded Systems (P. Placidi). Satellite Communications (S. Cacopardi). Electronics for Telecommunications (F. Alimenti). Microwave and Wireless Radiofrequency Systems (C. Tomassoni). Telecommunication Systems (L. Rugini). Wireless Transmissions and Estimation Methods (P. Banelli)

LANGUAGE PROFICIENCY *Mother Tongue:* **Italian**
Other Languages: **English** (Fluent)