

GESUALDO SCUTARI

Professor,
Purdue University,
School of Industrial Engineering,
School of Electrical and Computing Engineering (by courtesy),
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ACADEMIC EMPLOYMENT

Purdue University, West-Lafayette, IN
Professor of Industrial Engineering, 2021 – present
Professor of Electrical and Computing Engineering (by courtesy),
Thomas and Jane Schmidt Rising Star Associate Professor, 2018 – 2021
Associate Professor 2015 – 2018
State University of New York (SUNY) Buffalo, Buffalo, NY
Assistant Professor of Electrical Engineering, 2011 – 2015
University of Illinois at Urbana Champaign, Urbana-Champaign, IL
Research Associate, Dept. of Industrial and Enterprise Engineering, 2009 – 2010
Hong Kong University of Science and Technology (HKUST)
Post-doc (then Research Associate), Dept. of Electronic and Computer Engineering,
2007 – 2009.

LEADERSHIP POSITIONS

Purdue University, West-Lafayette, IN
Founding Director of a university-wide center of Science of Data Analytic (SODA)
(the center has been approved by the CoE and will be launched in Fall 2024)
Thrust Lead for Optimization, Center for Resilient Infrastructures, Systems, and Pro-
cesses, 2017 – 2022
Director for Big Data Analytics, Cyber Center (Discovery Park), 2015 – 2016

EDUCATION

University of Rome, “La Sapienza”, Rome, Italy,
Ph.D. (cum laude) in Electrical Engineering, 2007
Laurea Degree (with Highest Honor) in Electrical Engineering, 2002
University of California at Berkeley, Berkeley, CA
Visiting Ph.D. student, Dept. of Electrical Engineering and Computer Science, 2004
– 2005

ACADEMIC HONORS & AWARDS

1. **Purdue University Faculty Scholar** 2023
2. **Purdue College of Engineering Research Excellence Award** 2023
Award given annually to one faculty (only) within the entire CoE to have achieved
national and/or international recognition and have demonstrated excellent potential
for the future;
3. **Purdue Seed for Success ACORN Award** 2023
Recognizing Purdue principal investigators for acquiring awards of \$1 million or
more for the first time.
4. **IEEE Signal Processing Society Distinguished Lecturer** 2023-2024
One of the *five* world-wide Distinguished Lecturer nominated by the IEEE Signal
Processing Society for 2023-2024;
5. **IEEE Fellow** 2021
For contributions to distributed optimization in signal processing and communica-
tions;

ACADEMIC HONORS & AWARDS

6. **2020 IEEE Signal Processing Society Best Paper Award** 2021
Most prestigious award given by the IEEE Signal Processing Society to honor the author(s) of a paper of exceptional merit dealing with a subject related to the Society's technical scope, and appearing in one of the Society's owned transactions in the last five years to the date of the award;
7. **Purdue Endowed Chair:** Thomas and Jane Smith Rising Star Associate Professor of Industrial Engineering; 2018–2021
8. **Best Student Paper Award** (as advisor) 2017
Best Student Paper Award at the 2017 IEEE International Workshop on Computational Advances in Multi-Sensor Adaptive Processing, Dec. 10-13, 2017, Curacao, Dutch Antilles;
9. **Keynote Speaker** at at the ACM MobiHoc 2017 Workshop on “Distributed Information Processing in Wireless Networks”, IIT Madras, Chennai, India, July 10-14, 2017;
10. **Plenary Speaker** at the 18th IEEE International Workshop on Signal Processing Advances in Wireless Communications (SPAWC), Hokkaido, Japan, July 3-6, 2017;
11. **Annamaria Molteni Award for Mathematics & Physics** 2015
The award is given by the ISSNAF to a single Italian researcher in North America & Canada, whose work on Mathematics and Physics has garnered public and/or professional accolades beyond the norm;
12. **2014 IEEE Signal Processing Society Young Author Best Paper Award,** 2015
Most prestigious award given by the IEEE Signal Processing Society to honor the author(s) of a paper of exceptional merit dealing with a subject related to the Society's technical scope, and appearing in one of the Society's owned transactions in the last five years to the date of the award;
13. **ISSNAF Award for Young Investigators** 2014
This is the highest recognition given every year to the most promising young (i.e., less than 40 years old) Italian researcher in North America & Canada by the Italian Scientists and Scholars of North America Foundation (ISSNAF);
14. **NSF CAREER Award** 2013;
15. **SUNY Buffalo Exceptional Scholars–Young Investigator Award** 2013;
The award is given every year by the University at Buffalo to a single individual, whose work must have garnered public and/or professional accolades beyond the norm for other bodies of work in the identified genre;
16. **IEEE ICASSP Best Student Paper Award** 2006
Best student paper award at the IEEE International Conference on Acoustics, Speech, and Signal Processing (ICASSP), Toulouse, France, May 15-19, 2006. ICASSP is the world's largest and most comprehensive technical conference focused on signal processing and its applications.

RESEARCH AREAS

- Distributed Optimization and Information Processing
- Machine Learning Algorithms
- Mathematical Optimization Theory/Methods and (Engineering) Applications
- Game Theoretical Models/Algorithms and (Engineering) Applications

SELECTED
PUBLICATIONS
(by area)

Total Google Scholar Citations: 10640, h-index: 51 (as of Oct. 2023)¹
Full publication list: see appendix.

Mathematical Optimization Algorithms

- Y. Sun[§], G. Scutari[★], and A. Daneshmand⁺, “Distributed Optimization Based on Gradient-Tracking Revisited: Enhancing Convergence Rate via Surrogation,” **SIAM J. on Optimization**, vol. 32, no. 2, pp. 354–385, 2022 [<https://doi-org/10.1137/19M1259973>].
- F. Facchinei[★], V. Kungurtsev^{*}, L. Lampariello^{*}, and G. Scutari^{*}, “Diminishing Step-size Methods for Nonconvex Composite Problems via Ghost Penalties: from the General to the Convex Regular Constrained Case,” **Optimization Methods and Software**, vol. 37, no. 4, pp. 109–120, 2022 [<https://doi.org/10.1080/10556788.2020.1854253>].
- F. Facchinei[★], V. Kungurtsev^{*}, L. Lampariello^{*}, and G. Scutari^{*}, “Ghost Penalty in Nonconvex Constrained Optimization: Diminishing Stepsizes and Iteration Complexity,” **Mathematics of Operations Research**, vol. 46, no. 2, p. 595–626, 2021 [<https://doi.org/10.1287/moor.2020.1079>].
- A. Nedich, J.-S. Pang, G. Scutari, and Y. Sun, *Multi-agent Optimization. Lecture Notes in Mathematics*, Springer Verlag, CIME Subseries, 2018.
- A. Daneshmand⁺, G. Scutari[★], and V. Kungurtsev, “Second-order Guarantees of Distributed Gradient Algorithms,” **SIAM J. on Optimization**, vol. 30, no. 4, 2020 [<https://doi-org.ezproxy.lib.purdue.edu/10.1137/18M121784X>].
- L. Cannelli⁺, F. Facchinei[★], V. Kungurtsev^{*}, G. Scutari^{*}, “Asynchronous Parallel Algorithms for Nonconvex Optimization,” **Mathematical Programming**, vol. 184, pp. 121–154, 2020 [<https://doi.org/10.1007/s10107-019-01408-w>].
- A. Daneshmand⁺, G. Scutari[★], and V. Kungurtsev, “Second-order Guarantees of Distributed Gradient Algorithms,” **SIAM J. on Optimization**, vol. 30, no. 4, 2020 [<https://doi-org.ezproxy.lib.purdue.edu/10.1137/18M121784X>].
- G. Scutari[★] and Y. Sun^{§*} “Distributed Nonconvex Constrained Optimization over Time-varying Digraphs,” **Mathematical Programming**, vol. 176, pp. 497–544, 2019 [<https://doi.org/10.1007/s10107-018-01357-w>].
[Highly cited paper \(ISI Web of Knowledge, 2019, 2020\)](#).
- F. Facchinei[★], L. Lampariello^{*}, and G. Scutari^{*}, “Feasible Methods for Nonconvex Nonsmooth Problems with Applications in Green Communications,” **Mathematical Programming**, vol. 164, pp. 55–90, 2017 [<https://doi.org/10.1007/10107-016-1072-9>].
- F. Facchinei[★], J.-S. Pang^{*}, and G. Scutari^{*}, “Non-Cooperative Games with Minmax Objectives,” **Computational Optimization and Applications**, vol. 59, no. 1, pp 85–112, Oct. 2014 [<https://doi.org/10.1007/s10589-014-9642-3>].
- F. Facchinei[★], J.-S. Pang^{*}, G. Scutari^{*}, and L. Lampariello, “VI-constrained Hemivariational Inequalities: Distributed Algorithms and Power Control in Ad-Hoc Networks,” **Mathematical Programming**, vol. 145, no. 1, pp 59–96, June 2014 [<https://doi.org/10.1007/s10107-013-0640-5>].
- J.-S. Pang[★] and G. Scutari^{*}, “Nonconvex Games with Side Constraints,” **SIAM J. on Optimization**, vol. 21, no. 4, pp. 1491–1522, Dec. 2011 [<https://doi-org/10.1137/10081178>].

¹‘+’ denotes student co-author (supervised by Scutari); ‘§’ denotes post-doc co-author (supervised by G. Scutari); ‘*’ equal contribution, ‘★’ corresponding author.

Authorship order adopted with an advisee (either a student or postdoctoral scholar) is generally advisee followed by faculty members (listed in alphabetical order), unless there is a significant distinction in contributions.

Machine Learning Algorithms

- Y. Ji⁺, **G. Scutari**[★], Y. Sun, and H. Honnappa, “Distributed Sparse Regression via Penalization,” **J. of Machine Learning Research**, vol. 24, no. 272, pp. 1–62, 2023.
- M. Maros[§] and **G. Scutari**[★], “Decentralized Matrix Sensing: Statistical Guarantees and Fast Convergence,” accepted, Proc. **Conference on Neural Information Processing Systems (NeurIPS)**, 2023.
- Y. Ji⁺, **G. Scutari**[★], Y. Sun, and H. Honnappa, “Distributed (ATC) Gradient Descent for High-Dimension Sparse Regression,” **IEEE Trans. on Information Theory**, vol. 69, no. 8, pp. 5253–5276, 2023 [10.1109/TIT.2023.3267742].
- M. Maros[§] and **G. Scutari**[★], “Acceleration in Distributed Sparse Regression,” Proc. **Conference on Neural Information Processing Systems (NeurIPS 2022)**, 2022.
- M. Maros[§] and **G. Scutari**[★], “DGD²: A Linearly Convergent Distributed Algorithm for High-dimensional Statistical Recovery” Proc. **Conference on Neural Information Processing Systems (NeurIPS 2022)**, 2022.
- D. Kovalev, A. Beznosikov, E. Borodich, A. Gasnikov, and **G. Scutari**, “Optimal Gradient Sliding and Its Application to Distributed Optimization under Similarity,” Proc. **Conference on Neural Information Processing Systems (NeurIPS 2022)**, 2022 (Spotlight, acceptance rate 4%).
- Y. Tian⁺, **G. Scutari**, T. Cao⁺, and A. Gasnikov, “Acceleration in Distributed Optimization under Similarity,” Proc. **International Conference on Artificial Intelligence and Statistics (AISTATS 2022)**, 2022.
- A. Daneshmand⁺⁺, **G. Scutari**[★], P. Dvurechensky, A. Gasnikov, “Newton Method over Network is Fast up to Statistical Precision,” **International Conference on Machine Learning (ICML 2021)**, PMLR vol 139, pp. 2398-2409, 2021.
- A. Beznosikov, **G. Scutari**, A. Rogozin, and A. Gasnikov, “Distributed Saddle Point Problems under Similarity,” **Conference on Neural Information Processing Systems (NeurIPS 2021)**, 2021.
- J. Xu[§], Y. Tian⁺, Y. Sun[§], and **G. Scutari**, “Accelerated Primal-Dual Algorithms for Distributed Smooth Convex Optimization over Networks,” **International Conference on Artificial Intelligence and Statistics (AISTATS 2020)**, 2020.
- A. Daneshmand⁺, Y. Sun[§], **G. Scutari**[★], F. Facchinei, and B. Sadler, “Decentralized Dictionary Learning over Time-Varying Graphs,” **J. of Machine Learning Research**, vol. 20, no. 139, pp. 1–62, 2019.

Distributed Optimization and Game Theory with Engineering Applications

- N. Michelusi^{*}, **G. Scutari**[★], and C.-S. Lee⁺, “Finite-Bit Quantization for Distributed Algorithms with Linear Convergence,” **IEEE Trans. on Information Theory**, vol. 68, no. 11, pp. 7254–7280, Nov. 2022 [10.1109/TIT.2022.3176253].
- J. Xu[§], Y. Tian⁺, Y. Sun[§], and **G. Scutari**[★], “Distributed Algorithms for Composite Optimization: Unified and Tight Convergence Analysis,” **IEEE Trans. on Signal Processing**, vol. 69, pp. 3555–3570, June 2021 [10.1109/TSP.2021.3086579].
- Y. Tian⁺, Y. Sun[§], and **G. Scutari**[★], “Achieving linear rate in distributed asynchronous optimization,” **IEEE Trans. on Automatic Control**, vol. 65, no. 12, pp. 5264–5269, 2020 [DOI: 10.1109/TAC.2020.2977940].

- L. Cannelli⁺⁺, F. Facchinei^{*}, **G. Scutari^{*★}**, and V. Kungurtsev, “Asynchronous Optimization over Graphs: Linear Convergence under Error Bound Conditions,” **IEEE Trans. on Automatic Control**, vol. 66, no. 16, pp. 4604–4619, Oct. 2020 [10.1109/TAC.2020.3033490].
- I. Notarnicola, Y. Sun[§], **G. Scutari^{*★}**, and G. Notarstefano, “Distributed Big-Data Optimization via Block-wise Gradient Tracking,” **IEEE Trans. on Automatic Control**, vol. 66, no. 5, pp. 2045–2060, July 2020 [10.1109/TAC.2020.3008713].
- Y. Tian⁺, Y. Sun[§], and **G. Scutari^{*★}**, “Achieving linear rate in distributed asynchronous optimization,” **IEEE Trans. on Automatic Control**, vol. 65, no. 12, pp. 5264–5269, 2020 [DOI: 10.1109/TAC.2020.2977940].
- G. Shetty, K. Slavakis^{*}, A. Bose, L. Ying, U. Nakarmi, and **G. Scutari**, “Bi-Linear Modeling of Data Manifolds for Dynamic-MRI recovery,” **IEEE Trans. on Medical Imaging**, vol. 39, no. 3, pp. 688–702, March 2020 [10.1109/TMI.2019.2934125].
- **G. Scutari^{*★}**, F. Facchinei, and L. Lampariello, “Parallel and Distributed Methods for Constrained Nonconvex Optimization – Part I: Theory,” **IEEE Trans. on Signal Processing**, vol. 65, no. 8, pp. 1929–1944, April 2017 [10.1109/TSP.2016.2637317]. *Top 50 downloaded articles in IEEE TSP (Feb. 2017–June 2018)*. [Highly cited paper \(ISI Web of Knowledge, 2018, 2019\)](#).
- **G. Scutari^{*★}**, F. Facchinei, L. Lampariello, S. Sardellitti, P. Song⁺, “Parallel and Distributed Methods for Constrained Nonconvex Optimization – Part II: Applications in Communication and Machine Learning,” **IEEE Trans. on Signal Processing**, vol. 65, no. 8, pp. 1945–1960, April 2017 [10.1109/TSP.2016.2637314]. *Top 50 downloaded articles in IEEE TSP (Feb. 2017–June 2017)*.
- S. Sardellitti^{*}, **G. Scutari^{*★}**, and Sergio 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 [10.1109/TSIPN.2015.2448520]. *Top 50 downloaded articles in IEEE TSP (Dec. 2016–June 2017)*. [Highly cited paper \(ISI Web of Knowledge, 2016–2019\)](#). [2020 IEEE Signal Processing Society Best Paper Award](#).
- **G. Scutari^{*★}**, F. Facchinei, J.-S. Pang, and D. P. Palomar, “Real and Complex Monotone Communication Games,” **IEEE Trans. on Information Theory**, vol. 60, no. 7, pp. 4197–4231, July 2014 [10.1109/TIT.2014.2317791].
- **G. Scutari^{*★}**, F. Facchinei, P. Song⁺, D. P. Palomar, and J.-S. Pang, “Decomposition by Partial Linearization: Parallel Optimization of Multi-agent Systems,” **IEEE Trans. on Signal Processing**, vol. 63, no. 3, pp. 641–656, Feb. 2014 [10.1109/TSP.2013.2293126]. [2015 IEEE Signal Processing Society Young Author Best Paper Award](#). [Highly cited paper \(ISI Web of Knowledge, 2016, 2017, 2018, 2019, 2020\)](#).
- **G. Scutari^{*★}** and J.-S. Pang, “Joint Sensing and Power Allocation in Nonconvex Cognitive Radio Games: Nash Equilibria and Distributed Algorithms,” **IEEE Trans. on Information Theory**, vol. 59, no. 7, pp. 4626–4661, July 2013 [10.1109/TIT.2013.2239354].
- I. Atzeni^{*}, L. G. Ordóñez^{*}, G. Scutari^{*}, D. P. Palomar, and J. R. Fonollosa, “Demand-Side Management via Distributed Energy Generation and Storage Optimization,” **IEEE Transactions on Smart Grid**, vol. 4, no. 2, pp. 866–876, June 2013 [10.1109/TSG.2012.2206060]. *Top 50 downloaded articles in IEEE TSG (Jan. 2017, April 2017)*. [Highly cited paper \(ISI Web of Knowledge, 2016, 2017, 2018, 2019, 2020\)](#).

Magazine Papers (Signal and Information Processing)

- **G. Scutari***[★], F. Facchinei, D. P. Palomar, and J.-S. Pang, “Convex Optimization, Game Theory, and Variational Inequality Theory in Multiuser Communication Systems,” **IEEE Signal Processing Magazine**, vol. 27, no. 3, pp. 35-49, May 2010 [10.1109/MSP.2010.936021].
Top 100 downloaded articles in IEEE among 1.25 million articles available (April-July 2010).
Top 10 downloaded articles in IEEE SP Magazine (April-August 2010).
- **G. Scutari***[★], D. P. Palomar, J.-S. Pang, and Francisco Facchinei, “Flexible Design for Cognitive Wireless Systems: From Game Theory to Variational Inequality Theory,” **IEEE Signal Processing Magazine**, vol. 26, no. 5, pp. 107-123, Sept. 2009 [10.1109/MSP.2009.933446].
Top 100 downloaded articles in IEEE among 1.25 million articles available (Sept. 2009)
Top 10 downloaded articles in IEEE SP Magazine (Oct. 2009).
- **G. Scutari***[★], D. P. Palomar, and S. Barbarossa, “Cognitive MIMO Radio: Competitive Optimality Design Based on Subspace Projections,” **IEEE Signal Processing Magazine**, vol. 25, no. 6, pp. 46-59, Nov. 2008 [10.1109/MSP.2008.929297].
Top 100 downloaded articles in IEEE among 1.25 million articles available (Jan.-Mar. 2009).
Top 10 downloaded articles in IEEE SP Magazine (Mar. 2009).
- S. Barbarossa* and G. Scutari*[★], “Bio-Inspired Sensor Network Design,” **IEEE Signal Processing Magazine**, vol. 24, no. 3, pp. 26-35, May 2007 [10.1109/MSP.2007.361599].

PATENTS

Gesualdo Scutari and Daniel P. Palomar, “Multiple-Input Multiple-Output Cognitive MIMO Radio,” US Patent 20,120,071,102, 2012, March 2012. **Licensed.**

SPONSORED RESEARCH

National Science Foundation

1. *NeTS: Small: Toward Distributed Decision Making in Cognitive Radio Ad-hoc Networks Based on Bilevel-equilibrium Programming*, 07/01/2012–06/30/2016, \$400,000. Role: PI (co-PI: T. Melodia), PI share: 75%.
2. **CAREER**: *Variational Inequalities: A New Paradigm for Cognitive Network Layering*, 02/15/2013–01/31/2018, \$400,000. Role: **Sole PI**.
3. *CIF: Small: Collaborative Research: Communicating While Computing: Mobile Fog Computing Over Wireless Heterogeneous Networks*, 09/01/2015–08/31/2018 (extended till 08/31/2019), \$ ~ 225,000. Role: PI Lead Institution.
4. *CIF: Medium: Collaborative Research: Parallel Online Algorithms for Large-scale Dynamic MRI*, 09/01/2015–08/31/2017, \$ ~ 121,438. Role PI for SUNY Buffalo (co-PI: L. Ying; PI Lead: G. Giannakis, UMN).
5. *CIF: Small: Collaborative Research: Distributed Fog Computing for Non-Convex Big-Data Analytics*, 09/01/2017–08/31/2021, \$270,000. Role: PI Lead Institution.
6. *CMMI: CRISP 2.0 Type 1: Collaborative Research: Distributed Edge Computing to Improve Resilience of Interdependent Systems*, 01/01/2019–12/31/2022, \$ ~ 352,077. Role: Co-PI, Co-PI share: 33% (PI: A. Liu, Co-PI: R. Nateghi).
7. *CNS: NSF Workshop on State-of-the-Art and Challenges in Resilience*, 10/01/2018–09/30/2019, \$49,500. Role: Co-PI (PI: S. Bagchi).

Department of Defense (DoD)

8. *Distributed On-line Optimization and Learning for Nonconvex Big Data Analytics over Dynamic Networks*, 03/01/2016–02/28/2019, \$348,000, **Office of Naval Research (ONR)**. Role: **Sole PI**.
9. *Fast Parallel and Distributed Algorithms for Neural Networks*, 09/01/2016–08/31/2017, ~ \$80,000, **BAE Systems-Army Research Lab (ARL)**. Role: **Sole PI**.
10. *Distributed Robust Stochastic Nonconvex Optimization Over Time-Varying Networks*, 06/01/2018–07/01/2022, ~ \$400,000, **Army Research Office (ARO)**. Role: **Sole PI**.
11. *High-dimensional Statistical Inference and Optimization over Networks: Designs, Guarantees, and Tradeoffs*, 06/09/2021–06/09/2024, **Office of Naval Research (ONR)**, \$453,000. Role: **Sole PI**.

Department of Energy (DoE)

13. *Communication-Constrained Robust Control and Learning of Grid-Connected IoT*, 08/01/2020–30/5/2024, ~ \$1,500,000, Role: Co-PI; co-PI share: \$250,000.

Purdue College of Engineering

14. *Nonconvex Statistical Learning over Networks: Fundamental Tradeoffs and Guarantees*, 08/01/2018–07/31/2019, \$80,000, Collaborative Seed Grant, Data Science in Engineering, Purdue University. Role: PI (co-PI: H. Honnappa).
15. *Data Science for Decision-Making: A Distributed Nonconvex Approach with Guarantees*, 01/01/2018–01/31/2020, School of Industrial Engineering/IE Emerging Frontiers Teams Seed Funding Initiative, Purdue University, \$500,000. Role: PI (Co-PIs: H. Honnappa, A. Liu, and G. Cheng).

PROFESSIONAL LEADERSHIP POSITIONS ACTIVITIES & SERVICES

- *Founding Director* of a university-wide center of Science of Data Analytic (SODA) (the center has been approved by the CoE and will be launched in Fall 2024)
- Member of the Purdue Engineering Initiative (PEI) in Data and Engineering Applications Group 2019-2020
- Member of the Purdue Data Science Working Group, 2018–2021
- Thrust Leader for the area of Optimization, Center for Resilient Infrastructures, Systems, and Processes (CRISP), Purdue University, 2017–2022
- Director for Big Data Analytics, Cyber Center (Discovery Park) 2015–2016
- Member of the Purdue College of Engineering Preeminent Team on Flexible and Efficient Spectrum Usage² 2016 – present
- Elected Member of IEEE Signal Processing for Communications and Networking Technical Committee (SPCOM TC) 2012–2014.

EDITORIAL ACTIVITIES

- Associate Editor **SIAM J. on Optimization** 2020–present
- Guest Editor **IEEE Signal Processing Magazine**, Special Issue on “Non-Convex Optimization for Signal Processing and Machine Learning” 2021
- Senior Area Editor of **IEEE Trans. on Signal Processing** 2018–2021

²Members were chosen for the potential/impact of their work and international preeminence, as part of the college’s strategic growth plan that will add as many as 107 faculty over five years.

- Associate Editor of **IEEE Trans. on Signal and Information Processing over Networks** 2017–2020
- Associate Editor of **IEEE Trans. on Signal Processing** 2013–2018
- Associate Editor of **IEEE Signal Processing Letter** 2012–2013

CONFERENCE ORGANIZATION AND SERVICES

- Member of the best-paper award committee at the *2023 IEEE International Workshop on Computational Advances in Multi-Sensor Adaptive Processing (IEEE CAM-SAP)*, Dec. 10–13, 2023, Costa Rica.
- Special session “Recent Advances on Distributed Optimization,” *IEEE Asilomar Conference on Signal, System, and Computing*, Pacific Ground, CA, USA, Australia, Nov. 3-6, 2019;
- Special session “Optimization for Big-Data,” *International Conference on Continuous Optimization (ICCOPT)*, Tokyo, Japan, August 6-11, 2016;
- Special session “Signal Processing and Optimization for Big-data,” *Asilomar Conference on Signal, System, and Computing*, Pacific Grove, CA, USA, Nov. 8-11, 2015;
- Member of the organizing committee of the *2014 IEEE Workshop on Signal Processing Advances in Wireless Communications (IEEE SPAWC)*, June 22–25, 2014, Toronto, Canada;
- Member of the best-paper award committee of the *2012 IEEE Workshop on Signal Processing Advances in Wireless Communications (IEEE SPAWC)*;
- Special session on “Game Theory in Signal Processing for Communications,” the *17th International Conference on Digital Signal Processing*, Santorini, Greece, July 6-8, 2011;
- Special session on “Cognitive Radio Systems,” *Asilomar Conference on Signal, System, and Computing*, Pacific Grove, CA, USA, Nov. 4-7, 2011;
- Special session on “Game Theory”, *INFORMS 2011 Midwestern Conference*, Ohio State University, Columbus, OH, USA, August 1-2, 2011;
- Member of the organizing committee of the *2003 IEEE Workshop on Signal Processing Advances in Wireless Communications (IEEE SPAWC)*, July 15-18, 2003, Rome, Italy.

TECHNICAL PROGRAM COMMITTEE MEMBERSHIP

- IEEE Workshop on Signal Processing Advances in Wireless Communications, July 15-18, 2003, Rome, Italy.
- International Conference on Game Theory for Networks, May 13–15, 2009, Boğaziçi University, Istanbul, Turkey.
- Mosharaka International Conference on Communications, Computers and Applications, October 16, 2009, Amman, Jordan.
- Third Workshop on Game Theory in Communication Networks, October 23, 2009, Pisa, Italy.
- IEEE Workshop on Signal Processing Advances in Wireless Communications, June 21–24, 2009, Perugia, Italy.
- International Workshop on Cognitive Information Processing, June 14–16, 2010, Elba Island, Italy.
- IEEE Vehicular Technology Conference, May 15–18, 2011, Budapest, Hungary.
- IEEE International Conference on Communication, June 5–9, 2011, Kyoto, Japan;
- International Conference on Network Games, Control and Optimization, October 12–14, 2011, Paris, France.

- European Signal Processing Conference, August 29–Sept. 2, 2011, Barcelona, Spain.
- IEEE Global Communications Conference, December 9–11, 2011, Huston, TX, USA.
- IEEE International Conference on Acoustics, Speech, and Signal Processing, March 25–30, 2012, Kyoto, Japan.
- IEEE 74rd Vehicular Technology Conference, May 6–9, 2012, Yokohama, Japan;
- IEEE Workshop on Signal Processing Advances in Wireless Communications, June 17–20, 2012, Cesme, Turkey.
- IEEE Global Communications Conference, December 3–7, Anaheim, CA, USA.
- IEEE Wireless Communications and Networking Conference, April 7–10, 2013, Shanghai, China.
- IEEE International Conference on Acoustics, Speech, and Signal Processing, May 26–31, 2013, Vancouver, Canada.
- IEEE Workshop on Signal Processing Advances in Wireless Communications, June 16–19, 2013, Darmstadt, Germany.
- IEEE Global Communications Conference, December 9–13, Atlanta, GA, USA.
- IEEE Wireless Communications and Networking Conference, April 6–9, 2014, Istanbul, Turkey;
- IEEE International Conference on Acoustics, Speech, and Signal Processing, May 4–9, 2014, Florence, Italy.
- IEEE Workshop on Signal Processing Advances in Wireless Communications, June 22–25, 2014, Toronto, Canada.
- IEEE Global Communications Conference, December 9–12, Austin, TX, USA.
- IEEE International Conference on Signal Processing, Informatics, Communication and Energy Systems, Feb. 19–21, Kozhikode, India.
- IEEE International Conference on Communication, June 8–12, 2015, London, UK.
- IEEE Global Communications Conference, December 6–10, 2015, San Diego, CA, USA.
- IEEE Global Conference on Signal and Information Processing, Dec. 14–16, 2015, Orlando, FL, USA.
- Symposium on Signal and Information Processing Over Networks, within the 2016 IEEE Global Conference on Signal and Information Processing, Dec. 7–9, 2016, Washington, D.C., USA.
- Symposium on Distributed Information Processing, Optimization, and Resource Management over Networks, within the 2016 IEEE Global Conference on Signal and Information Processing, Dec. 7–9, 2016, Washington, D.C., USA.
- Symposium on Distributed Optimization and Resource Management over Networks, within the 2017 IEEE Global Conference on Signal and Information Processing, Nov. 14–16, 2017, Montreal, Canada.

PEER REVIEW ACTIVITIES (Journals only)

Mathematical Programming (Series A & B); Mathematics of Operation Research; EURASIP Signal Processing J.; IEEE Communication Magazine; IEEE Communication Letters; IEEE J. on Selected Areas in Communications; IEEE J. on Selected Topics in Signal Processing; IEEE Signal Processing Letter; IEEE Signal Processing Magazine; IEEE Transactions on Automatic Control; IEEE Transactions on Communications; IEEE Transactions on Information Theory; IEEE Transactions on Signal Processing; IEEE Transactions on Vehicular Technology; IEEE Transactions on Wireless Communications; SIAM Journal on Matrix Analysis and Applications; SIAM Journal on Optimization; Operation Research.

GRANT REVIEWER (Panelist)

- Natural Science and Engineering Research Council of Canada 2014–2018
- National Science Foundation (NSF) Panelist (including CAREER panels) 2013–2021
- European Community Council 2020–2023.

SERVICES AT PURDUE

- Chair of the faculty search committee, IE School AY 2019-2020, 2022-2023, 2023–2024
- Member of the IE Head search committee, AY 2021–2022
- Member of the faculty search committee, IE School 2020
- Member of the Faculty search committee, Purdue (CoE) College of Engineering, Big-Data Science Initiative AY 2017–2018, 2018–2019
- Graduate committee member, School of IE, AY 2015–2016, 2016-2017, 2017-2018.

INVITED COURSES, TUTORIALS, & SCHOLARLY TALKS

KEYNOTES, PLENARY TALKS, and DISTINGUISHED LECTURES

1. *Communication Efficient Distributed Machine Learning*. IEEE Signal Processing **Distinguished Lecture** Series, IEEE SEM (Southeastern Michigan) Chapter, Nov. 21, 2023.
2. *Statistical Inference over Networks: Decentralized Optimization Meets High-dimensional Statistics*. IEEE Signal Processing **Distinguished Lecture** Series, IEEE SPS North Jersey Chapter, Nov. 29, 2023.
3. *Statistical Inference over Networks: Decentralized Optimization Meets High-dimensional Statistics*. IEEE Signal Processing **Distinguished Lecture** Series, Machine Learning Seminars, **University of Minnesota**, Nov. 14, 2023, Minneapolis, USA.
4. *Bringing Statistical Thinking in Distributed Optimization. Vignettes from High-Dimensional Statistical Inference*. IEEE Signal Processing **Distinguished Lecture** Series, **King's College London**, July 13, 2023, London, UK.
5. *Bringing Statistical Thinking in Distributed Optimization. Vignettes from High-Dimensional Statistical Inference*. IEEE Signal Processing **Distinguished Lecture** Series, **Imperial College London**, July 12, 2023, London, UK.
6. *Bringing Statistical Thinking in Distributed Optimization: Vignettes from Statistical Learning over Networks*. IEEE Signal Processing **Distinguished Lecture** Series, **IIT Madras**, Feb. 15, 2023 (online on zoom).
7. *Bringing Statistical Thinking in Distributed Optimization: Vignettes from Statistical Learning over Networks*. IEEE Signal Processing **Distinguished Lecture** Series, **IIT Kharagpur**, Feb. 5, 2023 (online on zoom).
8. *Just Relax: Parallel Distributed Nonconvex Optimization via Successive Convex Approximation*. **Plenary Talk** at the IEEE International Workshop on Signal Processing Advances in Wireless Communications (SPAWC 2017), July 3-6, 2017, Hokkaido, Japan.
9. *Just Relax: Parallel Distributed Nonconvex Optimization via Successive Convex Approximation*. **Keynote Speaker** at the International Workshop on Distributed Information Processing in Wireless Networks, ACM-MobiHoc 2017, July 10-14, 2017, Madras, Chennai, India.

INVITED TALKS (most representative)

10. *Bringing Statistical Thinking in Distributed Optimization. Vignettes from High-Dimensional Statistical Inference.* **Politecnico of Milan**, July 17, 2023, Milan, UK.
11. *Bringing Statistical Thinking in Distributed Optimization. Vignettes from High-Dimensional Statistical Inference.* **Sapienza University of Rome**, June 28, 2023, Rome, Italy.
12. *Some Reflections on Decentralized Optimization for High-Dimensional Statistical Inference.* Statistics and Optimization in Data Science Workshop, Daniels' School of Business, **Purdue University**, May 25-27, 2023, West-Lafayette, IN, USA.
13. *Some Reflections on Distributed Optimization for High-Dimensional Statistical Inference.* Operations Research and Engineering Management, **Southern Methodist University** (online on zoom), Feb. 10, 2023, Dallas, TX.
14. *Bringing Statistical Thinking in Distributed Optimization: Vignettes from Statistical Learning over Networks.* **Texas A&M University**, Nov. 4, 2022, College Station, Texas, USA.
15. *Bringing Statistical Thinking in Distributed Optimization: Vignettes from Statistical Learning over Networks.* ICON Seminar in Optimization, **Purdue University**, Oct. 28, 2022, West-Lafayette, IN, USA.
16. *Bringing Statistical Thinking in Distributed Optimization: Vignettes from Statistical Learning over Networks.* Dept. of Statistics, **Purdue University**, April 29, 2022, West-Lafayette, IN, USA.
17. *Bringing Statistical Thinking in Distributed Optimization: Vignettes from Statistical Learning over Networks.* School of Electrical, Computer, and Energy Engineering, **Arizona State University**, Feb. 25, 2022, Phoenix, AZ, USA.
18. *Bringing Statistical Thinking in Distributed Optimization: Vignettes from Statistical Learning over Networks.* **All-Russian Optimization Seminar**, Dec. 15, 2021 (online on zoom).
19. *Bringing Statistical Thinking in Distributed Optimization: Vignettes from Statistical Learning over Networks.* Department of Electrical and Computer Engineering, **Rice University** (online on zoom), Nov. 30, 2021, Houston, TX, USA.
20. *Bringing Statistical Thinking in Distributed Optimization: Vignettes from Statistical Learning over Networks.* Dept. of Computer Sciences, **Purdue University**, Nov. 22, 2021.
21. *Bringing Statistical Thinking in Distributed Optimization: Vignettes from Statistical Learning over Networks.* School of Mathematical and Statistical Sciences, **Clemson University** (online on zoom), Nov. 1, 2021.
22. *Bringing Statistical Thinking in Distributed Optimization: Vignettes from Statistical Learning over Networks.* School of Mathematics, **Nanjing University** (online on zoom), Oct. 28, 2021.
23. *Bringing Statistical Thinking in Distributed Optimization: Vignettes from Statistical Learning over Networks.* **One World Signal Processing Seminar** (online on zoom), Dec. 10, 2020.
24. *Distributed Statistical Inference Over Networks: Are Existing Optimization Algorithms/Analyses Good?*, Dept. of Electrical and Computing Engineering, **Tufts University**, Dec. 4, 2020 (online on zoom), Medford, MA, USA.
25. *Decentralized Statistical Learning: Algorithms and Guarantees.* Dept. of Information Engineering, Electronics, and Telecommunications, **University of Rome "La Sapienza"**, July 4, 2019, Rome, Italy.

26. *Distributed On-line Optimization and Learning for Nonconvex Big Data Analytics over Dynamic Networks*. Mathematical Optimization 6.1 Peer Review Meeting, Dec. 8, 2018, Arlington, VA, USA.
27. *Just Relax: Parallel Distributed Nonconvex Optimization via Successive Convex Approximation*. Dept. of Information Engineering, Electronics, and Telecommunications, **University of Rome “La Sapienza”**, June 28, 2017, Rome, Italy.
28. *Parallel and Distributed Methods for Big-Data Optimization*. NSF BDSpoke project–Workshop on data quality, March 29, 2017, **Purdue University**, West-Lafayette, IN, USA.
29. *In-Network Nonconvex Large-scale Optimization*. Information Systems Laboratory Colloquium, Electrical Engineering Department, **Stanford University**, Feb. 8, 2017, CA, USA.
30. *In-Network Nonconvex Large-scale Optimization*, Institute for Pure & Applied Mathematics, **University of California (UCLA)**, Feb. 7, 2017, Los Angeles, CA, USA.
31. *In-Network Nonconvex Large-scale Optimization*, Dept. of Electrical Engineering, **University of California (UCLA)**, Nov. 10, 2016, Los Angeles, CA, USA.
32. *In-Network Nonconvex Large-scale Optimization*. Center for Optimization and Statistical Learning, **Northwestern University**, Oct. 10, 2016, Evanston, IL, USA.
33. *In-Network Nonconvex Large-scale Optimization*. Dept. of Engineering, **University of Salento**, July 7, 2016, Lecce, Italy.
34. *In-Network Nonconvex Large-scale Optimization*. Dept. of Computer, Control, and Management Engineering, **University of Rome “La Sapienza”**, June 27, 2016, Rome, Italy. *In-Network Nonconvex Big-Data Optimization*. Dept. of Industrial and System Engineering, **University of Illinois at Urbana-Champaign**, March 14, 2016, Urbana-Champaign, IL, USA.
35. *In-Network Nonconvex Large-scale Optimization*, Dept. of Electrical and Computer Engineering, **Purdue University**, Feb. 18, 2016, West-Lafayette, IN, USA.
36. *In-Network Nonconvex Big-Data Analytics*. “Distributed and Collaborative Intelligent Systems Army Science and Planning Strategy Meeting”, **Army Research Lab (ARL)**, Dec. 3–4, 2015, Adelphi, MD, USA.
37. *In-Network Nonconvex Big-Data Analytics*. **Army Research Lab (ARL)**, Oct. 27, 2015, Adelphi, MD, USA.
38. *Parallel and Distributed Algorithms for (nonconvex) Big-Data Optimization*. Dept. of Electrical and Computer Engineering, **University of Wisconsin-Madison**, March 24, 2015, Madison, WI, USA.
39. *Parallel and Distributed Algorithms for (nonconvex) Big-Data Optimization*, Dept. of Industrial Engineering, **Purdue University**, March 4, 2015, West-Lafayette, IN, USA.
40. *Parallel and Distributed Algorithms for (nonconvex) Big-Data Optimization*. Dept. of Industrial & Operations Engineering, **University of Michigan**, Feb. 17, 2015, Ann Arbor, MI, USA.
41. *Parallel and Distributed Algorithms for (nonconvex) Big-Data Optimization*. Dept. of Industrial and Manufacturing Engineering, **Penn State University**, Feb. 9, 2015, University Park, PA, USA.
42. *Parallel Optimization Algorithms for Big-Data Problems*. Dept. of Information Engineering, Electronics, and Telecommunications, **University of Rome “La Sapienza”**, Dec. 18, 2014, Rome, Italy.
43. *Parallel Optimization Algorithms for Big-Data Problems*. Dept. of Electrical and Computer Engineering, **University of Michigan**, Dec. 11, 2014, Ann Arbor, MI, USA.

44. *HyFLEXA: Hybrid Random/Deterministic Parallel Algorithms for Nonconvex Big Data Optimization*. Dept. of Electrical and Systems Engineering, **University of Pennsylvania**, Dec. 3, 2014, Philadelphia, PA, USA.
45. *HyFLEXA: Hybrid Random/Deterministic Parallel Algorithms for Nonconvex Big Data Optimization*. **Google**, Nov. 5, 2014, Mountain View, CA, USA.
46. *Parallel and Distributed Optimization of Large Scale Systems*. Dept. of Electrical Engineering, **Penn State University**, April 10, 2014, University Park, PA, USA.
47. *Parallel and Distributed Optimization of Large Scale Systems*. Dept. of Electrical Engineering, **University of Southern California**, April 2, 2014, Los Angeles, CA, USA.
48. *Parallel and Distributed Optimization of Large Scale Systems*. Dept. of Electrical Engineering, **University of California**, March 31, 2014, Los Angeles, CA, USA.
49. *Distributed Optimization of Large Scale Multi-Agent Systems*. Digital Technology Center, Dept. of Electrical and Computer Engineering, **University of Minnesota**, Sept. 23, 2013, Minneapolis, MN, USA.
50. *Distributed Optimization of Large Scale Multi-Agent Systems*. Dept. of Electrical and Computer Science, **Northwestern University**, August 19, 2013, Evanston, IL.
51. *Distributed Optimization of Large Scale Multi-Agent Systems*. Dept. of Information Engineering, Electronics, and Telecommunications, **University of Rome “La Sapienza”**, July 5, 2013, Rome, Italy.
52. *To Cooperate or Not to Cooperate: The Price of Altruism and Selfishness*. Dept. of Information Engineering, Electronics, and Telecommunications, **University of Rome “La Sapienza”**, Dec. 19, 2011, Rome, Italy.
53. *To Cooperate or Not to Cooperate: The Price of Altruism and Selfishness*. Dept. of Electrical Engineering, **SUNY Buffalo**, Oct. 24, 2011, Buffalo, NY, USA.
54. *Variational Inequality (VI) Theory: A Mathematical Framework for Distributed Decision Makings*. Dept. of Electrical Engineering, **SUNY Buffalo**, April 16, 2011, Buffalo, NY.
55. *Distributed Resource Allocation in Competitive Wireless Networks*, Ph.D. Opponent in Peter von Wrycza’s Doctoral Thesis in Telecommunications, School of Electrical Engineering, **KTH University**, Dec. 14, 2010, Sweden.
56. *Distributed Design of Cognitive Radio Systems: A Variational Inequality Approach*. Dept. of Industrial and Enterprise System Engineering, **University of Illinois at Urbana-Champaign**, April 13, 2010, Urbana-Champaign, IL, USA.

TUTORIALS AND INVITED SHORT COURSES

- *Network- and Data-driven Learning: Fundamentals and Applications*. **2019 IEEE-SPS/EURASIP Summer School**, May 20-24, 2019, Lecce Italy.
- *Advanced Decomposition Algorithms for Multi-Agent Systems*. **CIME Summer School** on “Centralized and Distributed Multi-Agent Optimization: Models and Algorithms”, Cetraro, Italy, June 23-28, 2014.
- *Parallel Decomposition Techniques for Large Scale Multi-Agent Systems*. **IMSE Summer School on Multi-Agent Networked Systems**, University of Illinois at Urbana-Champaign, August 15-19, 2013. **Monotone Communication Games: Theory, Algorithms, and Models. One-day course**, Syracuse University, Nov. 18, 2012.
- *Distributed Algorithms for Multiuser Systems*. **Tutorial speaker** at the 2012 Workshop on Complementarity and its Extensions, Institute of Mathematical Sciences, National University of Singapore, December 17-19, 2012.

- *Optimization Theory in the Decision Making for Cognitive Radio*. **ACROPOLIS Summer School** on Cognitive Radio Networks, July 12–15, 2011, Florence, Italy.
- *Variational Inequality (VI) Theory: A Mathematical Framework for Multiuser Communication Systems and Signal Processing*. **Tutorial** at the IEEE International Conference on Acoustic, Speech, and Signal Processing (ICASSP), May 22, 2011, Prague, Czech Republic.
- *Convex Optimization, Game Theory, and Variational Inequality Theory in Multiuser Communication Systems*. **Tutorial** at the European Signal Processing Conference (EUSIPCO), August 23–27, 2010, Aalborg, Denmark.
- *Distributed Resource Allocation in Competitive Wireless Networks*. **Ph.D. Opponent Talk** in Peter von Wrycza’s Doctoral Thesis in Telecommunications, Dec. 14, 2010, KTH, Sweden.

TEACHING

Purdue University

- IE335–Introduction to Operation Research-Optimization S16, S17, S18, S19, F20, S23
- IE590–Introduction to Computational Optimization (Purdue) F22
(*new course introduced by Dr. Scutari*)
- IE690–Large Scale Optimization S22
(*new course introduced by Dr. Scutari*)
- AAE/IE561–Introduction to Convex Optimization F19, F21
- IE528–Nonlinear Optimization S21
- IE590–Optimization for Big Data F16, F18
(*new course introduced by Dr. Scutari*)
- IE690–Multi-Agent Optimization F15, F17
(*new course introduced by Dr. Scutari*)

SUNY Buffalo

- EE701–Sparse Optimization (SUNY) S14, S15
(*new course introduced by Dr. Scutari*)
- EE701–Variational Inequality Theory with Engineering Applications (SUNY) S12, S13
(*new course introduced by Dr. Scutari*)
- EE531–Probability and Stochastic Processes F11, F12, F13, F14

MENTORING POST DOCTORAL SCHOLAR ADVISED ACTIVITIES

- **Sandipan Kundu**, Dept. of Electrical Eng, SUNY Buffalo 08/13–12/13
Topic(s): Distributed Fog-Computing for Heterogeneous Cloud Networks,
First job: Cruise Automation.
- Dr. **Ying Sun**, IE School, Purdue University 08/16–12/20
Topic(s): Distributed nonconvex optimization,
First job: Assistant Professor, Dept. of Electrical and Computer Engineering,
Penn State University, USA.
- Dr. **Jiming Xu**, IE School, Purdue University 08/18–08/19
Topic(s): Computational-Communication tradeoff in nonconvex distributed optimization,
First job: Assistant Professor, College of Control Science and Engineering, Zhejiang University, China.

- Dr. **Yao Zheng**, IE School, Purdue University 01/18–12/18
(co-advised with G. Cheng)
Topic(s): High-Dimensional Statistics over networks,
First job: Assistant Professor, Dept. of Statistics, University of Connecticut, USA.
- Dr. **Marie Maros**, IE School, Gilbreth Fellow, Purdue University 09/10–present
Topic(s): Decentralized High-Dimensional Statistics Learning.

GRADUATE STUDENTS ADVISED

- **Peiran Song**, SUNY Buffalo, Dept. of Electrical Engineering 05/2015
Ph.D. Thesis: Distributed Optimization of Nonconvex Multi-Agent Systems: Theory and Applications,
First job: Associate Professor at the Beijing Information Science and Technology University.
- **Loris Cannelli**, IE School, Purdue University 08/2019
Ph.D. Thesis: Asynchronous Algorithms for Nonconvex Large-Scale Optimization,
First job: Research Scientist at the DALLA MOLLE Institute for Artificial Intelligence, Switzerland.
- **Ye Tian**, IE School, Purdue University 08/2021
Ph.D. Thesis: Distributed Optimization for Machine Learning: Guarantees and Tradeoffs,
First job: Data Scientist at Amazon Research.
- **Amir Daneshmand**, IE School, Purdue University 08/2021
Ph.D. Thesis: Parallel/Decentralized Algorithms for Big-data Non-convex Optimization,
First job: Uber, Machine Learning Engineer.
- **Chang-Shen Lee**, ECE School, Purdue University 08/2021
(co-advised with Prof. Michelusi),
Ph.D. Thesis: Efficient Communication Methods for Distributed Optimization,
First job: Quantitative Research Associate at Bloomberg L.P..
- **Tejas Tamboli**, IE School, Purdue University 06/2022
M.S. Thesis: Linear Convergence of Distributed Gradient Tracking Schemes under the KL Property,
First job: Atria.

CURRENT PH.D. STUDENTS

- **Yao Ji**, IE School, Purdue University , Graduation date: 2024 (expected)
- **Tianyu Cao**, IE School, Purdue University Graduation date: 2026 (expected)
- **Xiaokai Chen**, IE School, Purdue University Graduation date: 2027 (expected)
- **Evan Chen**, ECE School, Purdue University Graduation date: 2027 (expected)
(co-advised with Prof. Brendon),
- **Pai-Chuan Chang**, ECE School, Purdue University Graduation date: 2027
(expected)

UNDERGRADUATE ADVISING

Dr. Scutari has advised several undergraduate students, in the form of individual studies or summer research projects. The full list is omitted for the sake of brevity and available under request.

PH.D.THESIS COMMITTEES SERVED

- **Peter von Wrycza**, Dept. of Electrical Eng., KTH, Sweden 12/10
Ph.D. Thesis: Distributed Resource Allocation in Competitive Wireless Networks
Ph.D. Advisor: B. Otterstern.
- **Alberth Alvarado**, Dept. of Industrial & Enterprise Systems Eng., UIUC, USA 08/14
Ph.D. Thesis: Centralized and Distributed Resource Allocation with Applications to Signal Processing in Communications
Ph.D. Advisor: J.-S. Pang.
- **Ali Parichehreh**, Dept. of Electrical Eng., Polytechnic of Milan, Italy 10/15
Ph.D. Thesis: Efficient Traffic Offloading in Advanced Wireless Networks
Ph.D. Advisor: U. Spagnolini.
- **Wenqi Wang**, IE School, Purdue University 05/17
Ph.D. Thesis: Multi-Dimensional Data Analysis: Subspace Learning, Clustering and Completion
Ph.D. Advisor: V. Aggarwal.
- **Ali N. Al-Shuwail**, Dept. of Electrical Eng., NJIT, USA 05/17
Ph.D. Thesis: Joint Uplink/Downlink, Precoding, Scheduling and Offloading Optimization for Mobile Cloud Computing with Limited Backhaul
Ph.D. Advisor: O. Simeone.
- **Aryan Mokhtari**, Dept. of Electrical & System Eng., UPenn, USA 05/17
Ph.D. Thesis: Efficient Methods for Large-Scale Optimization
Ph.D. Advisor: A. Ribeiro.
- **Elvin Isufi**, Dept. of Electrical Eng., Delft University, Netherlands 03/18
Ph.D. Thesis: Signal Processing on Graphs: filtering, sampling, and adaptive algorithms
Ph.D. Advisor: P. Banelli and G. Leus.
- **Run Chen**, IE School, Purdue University, USA 06/21
Ph.D. Thesis: Distributed Optimization Algorithms and Their Applications to Large-scale Problems in Energy Systems
Ph.D. Advisor: A. Liu.
- **Kananart Kuwarananchaoen**, ECE School, Purdue University, USA 06/23
Ph.D. Thesis: Analyses and Scalable Algorithms For Byzantine-Resilient Distributed Optimization
Ph.D. Advisor: S. Sundaram.

Monograph (lecture notes)

1. A. Nedich, J.-S. Pang, **G. Scutari**, and Y. Sun, *Multi-agent Optimization*. Lecture Notes in Mathematics, Springer Verlag, CIME Subseries, 2018.

Refereed Book Chapters

1. Francisco Facchinei*, Vyacheslav Kungurtsev*, Lorenzo Lampariello*, and **Gesualdo Scutari***, “Iterative Complexity of a Fixed-Step SQP Method for NonConvex Optimization with Convex Constraints,” *Numerical Analysis and Optimization*, p. 109-120, 2020.
2. **G. Scutari***, D. P. Palomar, F. Facchinei, and J-S. Pang, “Monotone Games for Cognitive Radio Systems,” in *Distributed Decision-Making and Control*, Eds. Anders Rantzer and Rolf Johansson, **Lecture Notes in Control and Information Sciences Series**, Springer Verlag, 2011.
3. **G. Scutari***, D. P. Palomar, and S. Barbarossa, “Competitive Optimization of Cognitive Radio MIMO Systems via Game Theory,” in *Convex Optimization in Signal Processing and Communications*, Eds. Daniel P. Palomar and Yonina C. Eldar, **Cambridge University Press**, 2009.
4. S. Barbarossa, **G. Scutari**, and L. Pescosolido, “Distributed Space-Time Coding Techniques for Multihop Networks”, in **EURASIP Hindawi Book Series**, T. Kaiser and A. Bourdoux, Editors, 2004.

Journal Papers (Published/Accepted)³

1. Y. Ji⁺, **G. Scutari***, Y. Sun, and H. Honnappa, “Distributed Sparse Regression via Penalization,” **J. of Machine Learning Research**, vol. 24, no. 272, pp. 1–62, 2023.
2. M. Maros[§] and **G. Scutari***, “Decentralized Matrix Sensing: Statistical Guarantees and Fast Convergence,” accepted, Proc. **Conference on Neural Information Processing Systems (NeurIPS)**, 2023.
3. Y. Ji⁺, **G. Scutari***, Y. Sun, and H. Honnappa, “Distributed (ATC) Gradient Descent for High-Dimension Sparse Regression,” **IEEE Trans. on Information Theory**, vol. 69, no. 8, pp. 5253–5276, 2023 [10.1109/TIT.2023.3267742].
4. V. Kungurtsev, M. Morafah, T. Javidi, and **G. Scutari**, “Decentralized Asynchronous Non-convex Stochastic Optimization on Directed Graphs,” early access, **IEEE Trans. on Control of Network Systems**, 2023 [10.1109/TCNS.2023.3242043].
5. N. Michelusi*, **G. Scutari***, and C.-S. Lee⁺, “Finite-Bit Quantization for Distributed Algorithms with Linear Convergence,” **IEEE Trans. on Information Theory**, vol. 68, no. 11, pp. 7254–7280, Nov. 2022 [10.1109/TIT.2022.3176253].
6. K. Slavakis*, G. Shetty, L. Cannelli⁺, **G. Scutari**, U. Nakarmi, and L. Ying, “Kernel Regression Imputation in Manifolds via Bi-linear Modeling: The Dynamic MRI case,” **IEEE Trans. on Computational Imaging**, vol. 8, pp. 133-147, 2022 [10.1109/TCI.2022.3148062].
7. Y. Sun[§], **G. Scutari***, and A. Daneshmand⁺, “Distributed Optimization Based on Gradient-Tracking Revisited: Enhancing Convergence Rate via Surrogation,” **SIAM J. on Optimization**, vol. 32, no. 2, pp. 354-385, 2022 [https://doi.org/10.1137/19M1259973].
8. F. Facchinei*^{*}, V. Kungurtsev*, L. Lampariello*, and **G. Scutari***, “Diminishing Step-size Methods for Nonconvex Composite Problems via Ghost Penalties: from the General to the Convex Regular Constrained Case,” **Optimization Methods and**

³The list includes papers published at the conferences NeurIPS, AAAI, ICML, and AISTATS with acceptance rate around 15% – 30%.

- Software**, vol. 37, no. 4, pp. 109–120, 2022 [<https://doi.org/10.1080/10556788.2020.1854253>].
9. M. Maros[§] and **G. Scutari**[★], “Acceleration in Distributed Sparse Regression,” Proc. **Conference on Neural Information Processing Systems (NeurIPS 2022)**, 2022.
 10. M. Maros[§] and **G. Scutari**[★], “DGD²: A Linearly Convergent Distributed Algorithm for High-dimensional Statistical Recovery” Proc. **Conference on Neural Information Processing Systems (NeurIPS 2022)**, 2022.
 11. D. Kovalev, A. Beznosikov, E. Borodich, A. Gasnikov, and **G. Scutari**, “Optimal Gradient Sliding and Its Application to Distributed Optimization under Similarity,” Proc. **Conference on Neural Information Processing Systems (NeurIPS 2022)**, 2022 (**Spotlight, acceptance rate 4%**).
 12. Y. Tian⁺, **G. Scutari**, T. Cao⁺, and A. Gasnikov, “Acceleration in Distributed Optimization under Similarity,” Proc. **International Conference on Artificial Intelligence and Statistics (AISTATS 2022)**, 2022.
 13. F. Facchinei^{★★}, V. Kungurtsev^{*}, L. Lampariello^{*}, and **G. Scutari**[★], “Ghost Penalty in Nonconvex Constrained Optimization: Diminishing Stepsizes and Iteration Complexity,” **Mathematics of Operations Research**, vol. 46, no. 2, p. 595–626, 2021 [<https://doi.org/10.1287/moor.2020.1079>].
 14. A. Daneshmand⁺⁺, **G. Scutari**[★], P. Dvurechensky, A. Gasnikov, “Newton Method over Network is Fast up to Statistical Precision,” Proc. **International Conference on Machine Learning (ICML 2021)**, PMLR vol 139, pp. 2398-2409, 2021.
 15. A. Beznosikov, **G. Scutari**, A. Rogozin, and A. Gasnikov, “Distributed Saddle Point Problems under Similarity,” Proc. **Conference on Neural Information Processing Systems (NeurIPS 2021)**, 2021.
 16. J. Xu[§], Y. Tian⁺, Y. Sun[§], and **G. Scutari**[★], “Distributed Algorithms for Composite Optimization: Unified and Tight Convergence Analysis,” **IEEE Trans. on Signal Processing**, vol. 69, pp. 3555–3570, June 2021 [10.1109/TSP.2021.3086579].
 17. J. Xu[§], Y. Tian⁺, Y. Sun[§], and **G. Scutari**, “Accelerated Primal-Dual Algorithms for Distributed Smooth Convex Optimization over Networks,” Proc. **International Conference on Artificial Intelligence and Statistics (AISTATS 2020)**, 2020.
 18. L. Cannelli⁺, F. Facchinei, **G. Scutari**[★], and V. Kungurtsev, “Asynchronous Optimization over Graphs: Linear Convergence under Error Bound Conditions,” **IEEE Trans. on Automatic Control**, vol. 66, no. 16, pp. 4604-4619, Oct. 2020 [10.1109/TAC.2020.3033490].
 19. C.-S. Lee⁺, N. Michelusi, and **G. Scutari**[★], “Limited Rate Distributed Weight-Balancing and Average Consensus over Digraphs,” **IEEE Trans. on Automatic Control**, vol. 66, no. 10, pp. 4530–4545, Oct. 2021 [10.1109/TAC.2020.3030871].
 20. I. Notarnicola, Y. Sun[§], **G. Scutari**[★], and G. Notarstefano, “Distributed Big-Data Optimization via Block-wise Gradient Tracking,” **IEEE Trans. on Automatic Control**, vol. 66, no. 5, pp. 2045-2060, July 2020 [10.1109/TAC.2020.3008713].
 21. A. Daneshmand⁺, **G. Scutari**[★], and V. Kungurtsev, “Second-order Guarantees of Distributed Gradient Algorithms,” **SIAM J. on Optimization**, vol. 30, no. 4, 2020 [<https://doi-org.ezproxy.lib.purdue.edu/10.1137/18M121784X>].
 22. Y. Tian⁺, Y. Sun[§], and **G. Scutari**[★], “Achieving linear rate in distributed asynchronous optimization,” **IEEE Trans. on Automatic Control**, vol. 65, no. 12, pp. 5264–5269, 2020 [DOI: 10.1109/TAC.2020.2977940].
 23. L. Cannelli⁺⁺, F. Facchinei^{★★}, V. Kungurtsev^{*}, **G. Scutari**[★], “Asynchronous Parallel Algorithms for Nonconvex Optimization,” **Mathematical Programming**, vol. 184, pp. 121–154, 2020 [<https://doi.org/10.1007/s10107-019-01408-w>].

24. G. Shetty, K. Slavakis^{*}, A. Bose, L. Ying, U. Nakarmi, and **G. Scutari**, “Bi-Linear Modeling of Data Manifolds for Dynamic-MRI recovery,” **IEEE Trans. on Medical Imaging**, vol. 39, no. 3, pp. 688–702, March 2020 [10.1109/TMI.2019.2934125].
25. **G. Scutari**^{**} and Y. Sun[§] “Distributed Nonconvex Constrained Optimization over Time-varying Digraphs,” **Mathematical Programming**, vol. 176, pp. 497–544, 2019 [https://doi.org/10.1007/s10107-018-01357-w].
[Highly cited paper \(ISI Web of Knowledge, 2019, 2020\).](#)
26. A. Daneshmand⁺, Y. Sun[§], **G. Scutari**^{*}, F. Facchinei, and B. Sadler, “Decentralized Dictionary Learning over Time-Varying Graphs,” **J. of Machine Learning Research**, vol. 20, no. 139, pp. 1–62, 2019.
27. A. Al-Shuwaili, O. Simeone, A. Bagheri, and **G. Scutari**, “Joint Uplink/Downlink Optimization for Backhaul-Limited Mobile Cloud Computing with User Scheduling,” **IEEE Trans. on Signal and Information Processing over Networks**, vol. 3, no. 4, pp. 787–802, Dec. 2017 [10.1109/TSIPN.2017.2668142].
Top 50 downloaded articles in Top 50 downloaded articles in IEEE TSP (Feb. 2017–June 2017).
28. **G. Scutari**^{**}, F. Facchinei, and L. Lampariello, “Parallel and Distributed Methods for Constrained Nonconvex Optimization – Part I: Theory,” **IEEE Trans. on Signal Processing**, vol. 65, no. 8, pp. 1929–1944, April 2017 [10.1109/TSP.2016.2637317].
Top 50 downloaded articles in IEEE TSP (Feb. 2017 – June 2018).
[Highly cited paper \(ISI Web of Knowledge, 2018, 2019\).](#)
29. **G. Scutari**^{**}, F. Facchinei, L. Lampariello, S. Sardellitti, P. Song⁺, “Parallel and Distributed Methods for Constrained Nonconvex Optimization – Part II: Applications in Communication and Machine Learning,” **IEEE Trans. on Signal Processing**, vol. 65, no. 8, pp. 1945–1960, April 2017 [10.1109/TSP.2016.2637314].
Top 50 downloaded articles in IEEE TSP (Feb. 2017 – June 2017).
30. F. Facchinei^{**}, L. Lampariello^{*}, and **G. Scutari**^{*}, “Feasible Methods for Nonconvex Nonsmooth Problems with Applications in Green Communications,” **Mathematical Programming**, vol. 164, pp. 55–90, 2017 [https://doi.org/10.1007/s10107-016-1072-9].
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2. A. Agafonov, P. Dvurechensky, **G. Scutari**, A. Gasnikov, D. Kamzolov, A. Lukashevich, and A. Daneshmand⁺, “An Accelerated Second-Order Method for Distributed Stochastic Optimization,” Proc. of the *60th IEEE Conference on Decision and Control (CDC)*, 14–17 Dec. 2021, Austin, TX, USA.
3. J. Xu[§], Y. Tian⁺, Y. Sun[§], and **G. Scutari**[★], “A Unified Algorithmic Framework for Distributed Composite Optimization,” Proc. of the *59th IEEE Conference on Decision and Control (CDC20)*, Dec. 14–18, 2020, (online conference because of COVID-19).
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11. Y. Sun[§] and G. Scutari[★], “Distributed Nonconvex Optimization for Sparse Representation,” Proc. of the *2017 IEEE International Conference on Acoustics, Speech, and Signal Processing (ICASSP17)*, March 5–9, 2017, New Orleans, USA.
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