ANGELIA NEDIĆ

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AFFILIATIONS

Coordinated Science Laboratory	University of Illinois	Urbana-Champaign
Computational Science and Eng.	University of Illinois	Urbana-Champaign
Electrical and Computer Science	University of Illinois	Urbana-Champaign

EDUCATION

Massachusetts Institute of Technology	EECS	PhD	2002
Moscow State University	Comp. MATH	PhD	1994
Belgrade University	MATH	MS	1990
University of Montenegro	MATH	BS	1987

INDUSTRIAL EXPERIENCE

BAE Systems	Burlington, MA	Senior Engineer	Aug. 2002–July 2006

ACADEMIC EXPERIENCE

University of Montenegro	Podgorica, Montenegro	Teaching Assistant	July 1987–Sep. 1994
University of Illinois	Urbana-Champaign, IL	Assistant Professor	Aug. 2006–2012
University of Illinois	Urbana-Champaign, IL	Associate Professor	Aug. 2012–

RESEARCH INTEREST

- Distributed and Large-Scale Optimization
- Convex and Nonsmooth Optimization
- Game Theory and Variational Inequalities
- Duality and Convexity Theory
- Stochastic Approximations
- Dynamic Systems
- Applications in communication networks, signal processing, machine learning, and sensor networks

TEACHING EXPERIENCE

- Convex Optimization: Spring 2007, Fall 2008, Spring 2011, Fall 2012, Spring 2014, Spring 2015
- Linear Programming: Spring 2013
- Game Theory Models, Algorithms and Applications: Fall 2007 and Fall 2008 (co-taught with U. Shanbhag), Spring 2010 (co-taught with J.-S. Pang)
- Distributed Optimization: Spring 2008
- Introduction to Operations Research: Spring 2009, Fall 2009, Spring 2012
- Introduction to Feedback Control Systems: Fall 2010, Spring 2011, Fall 2011

AWARDS AND HONORS

- The Best Paper Award of the 13th International Symposium on Modeling and Optimization in Mobile, Ad Hoc and Wireless Networks (WiOpt 2015), IIT Bombay, 25-29 May 2015 (jointly with K. Cohen and R. Srikant); two such awards are given.
- A recipient of Dean's Award for Excellence in Research in 2015, the College of Engineering, University of Illinois at Urbana-Champaign
- The Best Theoretical Paper Award of the Winter Simulation Conference, Washington, DC, December 8-11, 2013 (jointly with F. Yousefian and U.V. Shanbhag).
- Donald Biggar Willett Scholar honorary title for research accomplishments, the College of Engineering, University of Illinois at Urbana-Champaign, 2013
- NSF CAREER Award 2007 in Operations Research
- The Best Student graduating in 1987 at the University of Montenegro, former Titograd, Yugoslavia

GRANTS

- Project Title: *Cooperative Multi-Agent Optimization*, 2/1/08–1/31/13 NSF-CMMI Career, amount $400,000
- Project Title: *Dynamic Traffic Equilibrium Problems*, 9/1/2009–8/31/2012 NSF-CMMI, amount $200,000 of which $100,000 allocated to A. Nedić
- Project Title: *Compressive Sensing and Coding for Complex Networks*, 7/1/09–6/31/12 AFOSR, amount $460,000 of which $220,000 allocated to A. Nedić
- Project Title: *Gradient-Based Methods in Optimization*, 9/1/09–8/31/13 US-Israel Bi-national Science Foundation, amount $112,000 of which $4,000 allocated for travel only to A. Nedić
- Project Title: *Decentralized signal processing and distributed decision-making in networked systems*, 9/1/11-8/31/16 NSF-CIF, amount $1,069,290 allocated to UIUC team of 3
- Project Title: *Information Structures Signaling and Competitively Optimal Policies in Decentralized Online Optimization*, 9/30/12–9/30/17 Navy, amount $747,420 allocated to UIUC team of 3

- Project Title: *Optimization Algorithms for Resource Management: Decentralization, Near-Optimality and the Price of Anarchy*, 9/1/12–8/31/15 Navy, amount $749,333 allocated to UIUC team of 2
- Project Title: *Optimization with Uncertainties over Time: Theory and Algorithms*, 8/1/13–7/31/16 NSF-DMS, amount $183,768 (single PI)

PUBLICATIONS

Books and Monographs

- A. Nedić. *Convergence Rate of Distributed Averaging Dynamics and Optimization in Networks*, Foundations and Trends in Systems and Control, vol. 2, no. 1, pp. 1–100, 2015.
- D.P. Bertsekas, A. Nedić, and A.E. Ozdaglar, *Convex Analysis and Optimization*, Athena Scientific, Belmont, MA, 2003.

Book Chapters

1. I. Necoara, A. Patrascu and A. Nedić, "Computational complexity certifications for inexact dual first order methods and its application to real-time MPC," a book chapter in the edited book *Developments in Model-Based Optimization and Control*, submitted in June 2015 for a final review.
2. K. Srivastava, A. Nedić, and D. Stipanović, "Distributed Bregman-Distance Algorithms for Min-Max Optimization," in the edited book *Agent-Based Optimization*, I. Czarnowski, P. Jedrzejowicz and J. Kacprzyk (Eds.), Springer Studies in Computational Intelligence (SCI), 2012.
3. A. Nedić and A. Ozdaglar, "Cooperative Distributed Multi-Agent Optimization," in the edited book *Convex Optimization in Signal Processing and Communications*, Y. Eldar and D. Palomar (Eds.) Cambridge University Press, pp. 340–386, 2010.
4. S. Sundhar Ram, V.V. Veeravalli, and A. Nedić, "Distributed and Recursive Nonlinear Least Square Parameter Estimation: Linear and Separable Models," in the edited book *Sensor Networks: Where Theory Meets Practice*, G. Ferrari (Ed.) Springer-Verlag, pp. 17–38, 2009.
5. D.P. Bertsekas, V. Borkar, and A. Nedić, "Improved Temporal Difference Methods with Linear Function Approximation," in the edited book *Learning and Approximate Dynamic Programming*, A. Barto, W. Powell, J. Si, (Eds.), IEEE Press, 2004.

Expository Articles (peer reviewed)

1. A. Nedić "Distributed Optimization," expository article for Encyclopedia of Systems and Control, edited by T. Samad and J. Baillieul, Springer-Verlag, London, 2014.
2. A. Nedić "Lagrangian Optimization Methods for Nonlinear Programming," expository article in Wiley Encyclopedia of Operations Research and Management Science, J.J. Cochran (Editor-in-Chief), published by John Wiley & Sons Inc., 2011.

Journal Papers (under review/revision)

1. A. Nedić, A. Olshevsky and C.A. Uribe, "Non-asymptotic Convergence Rates for Distributed Non-Bayesian Learning," submitted August 2015
2. K. Cohen, A. Nedić and R. Srikant, "Distributed Learning Algorithms for Spectrum Sharing in Spatial Random Access Wireless Networks," submitted July 2015
3. F. Yousefian, A. Nedić and U.V. Shanbhag, "On Smoothing, Regularization and Averaging in Stochastic Approximation Methods for Stochastic Variational Inequalities," submitted November 2014, under the first round of reviews.
4. A. Nedić and J. Liu, "On Convergence Rate of Weighted-Averaging Dynamics for Consensus Problems," submitted July 2014, under the second round of reviews.
5. A. Nedić and A. Olshevsky, "Stochastic Gradient-Push for Strongly Convex Functions on Time-Varying Directed Graphs," submitted June 2014, under the third round of reviews.
6. M. Raginsky and A. Nedić, "Online Discrete Optimization in Social Networks in the Presence of Knightian Uncertainty," submitted July 1, 2013, under the second round of reviews.
7. J. Koshal, A. Nedić and U.V. Shanbhag, "Distributed Algorithms for Aggregative Games on Graphs, submitted November 2012, under the second round of reviews.

Conference Papers (under peer review)

1. S. Bhatti, A. Nedić, and C.L. Beck, "Data Clustering via Resource Diffusion," submitted to NIPS, May 2015

Journal Papers (published or accepted)

1. F. Yousefian, A. Nedić, and U.V. Shanbhag, "Stochastic Approximation Schemes for Nonsmooth Stochastic Multi-User Optimization and Nash Games," accepted in IEEE Transactions on Automatic Control, April 2015.
2. S. Lee and A. Nedić "Asynchronous Gossip-Based Random Projection Algorithms Over Networks", accepted in IEEE Transactions on Automatic Control, 2015.
3. A. Nedić and A. Olshevsky, "Distributed optimization over time-varying directed graphs," *IEEE Transactions on Automatic Control* 60 (3) 601–615, 2015.
4. T-H. Chang, A. Nedić, and A. Scaglione, "Distributed Constrained Optimization by Consensus-Based Primal-Dual Perturbation Method", *IEEE Transactions on Automatic Control* 59 (6) 1524–1538, 2014.
5. A. Beck, A. Nedić, A. Ozdaglar, and M. Teboulle, "Optimal Distributed Gradient Methods for Network Resource Allocation Problems," the inaugural issue of the *IEEE Transactions on Control of Network Systems (TCON)*, 1 (1) 64–74, 2014.
6. A. Nedić and S. Lee, "On Stochastic Subgradient Mirror-Descent Algorithm with Weighted Averaging," *SIAM Journal on Optimization*, 24 (1) 84–107, 2014.
7. B. Touri and A. Nedić, "Product of Random Stochastic Matrices," *IEEE Transactions on Automatic Control*, 59 (2) 437–448, 2014.

8. S. Lee and A. Nedić, "Distributed Random Projection Algorithm for Convex Optimization", IEEE Journal of Selected Topics in Signal Processing, a special issue on *Adaptation and Learning over Complex Networks* 7, 221–229, 2013.
9. V. Skachek, O. Milenkovic and A. Nedić, "Hybrid Noncoherent Network Coding," *IEEE Transactions on Information Theory* 59 (6) 3317–3331, 2013.
10. A. Nedić and D. Bauso, "Dynamic Coalitional TU Games: Distributed Bargaining among Players' Neighbors," *IEEE Transactions on Automatic Control* 58 (6) 1363–1376, 2013.
11. J. Koshal, A. Nedić, and U.V. Shanbhag, "Regularized Iterative Stochastic Approximation Methods for Variational Inequality Problems," *IEEE Transactions on Automatic Control* 58 (3) 594–609, 2013.
12. B. Touri and A. Nedić, "On Backward Product of Stochastic Matrices," *Automatica* 48 (8) 1477–1488, 2012.
13. B. Touri and A. Nedić, "On Approximations and Ergodicity Classes in Random Chains," *IEEE Transactions on Automatic Control* 57 (11) 2718–2730, 2012.
14. F. Yousefian, A. Nedić, and U.V. Shanbhag, "On stochastic gradient and subgradient methods with adaptive steplength sequences," a short version in Automatica 48 (1) 56–67, 2012, full version at http://arxiv.org/abs/1105.4549.
15. S.S. Ram, A. Nedić, and V.V. Veeravalli "A New Class of Distributed Optimization Algorithms: Application to Regression of Distributed Data," *Optimization Methods and Software* 27(1) 71–88, 2012.
16. J. Koshal, A. Nedić, and U.V. Shanbhag, "Multiuser Optimization: Distributed Algorithms and Error Analysis," *SIAM Journal on Optimization* 21(3) 1046–1081, 2011.
17. K. Srivastava and A. Nedić, "Distributed Asynchronous Constrained Stochastic Optimization," *IEEE Journal of Selected Topics in Signal Processing*, Special issue on "Gossiping Algorithms Design and Applications," edited by M. Coates, M. Gastpar, A. Scaglione, J. Tsitsiklis, and M. Vetterli, 5 (4) 772–790, 2011.
18. A. Nedić, "Random Projection Algorithms for Convex Minimization Problems," *Mathematical Programming*, Series B, Special issue in honor of Paul Tseng on "Large Scale Optimization: Analysis, Algorithms and Applications," 129, 225–253, 2011.
19. B. Touri and A. Nedić, "On Ergodicity, Infinite Flow and Consensus in Random Models," *IEEE Transactions on Automatic Control*, 56 (7) 1593–1605, 2011.
20. A. Nedić, "Asynchronous Broadcast-Based Convex Optimization over a Network," *IEEE Transactions on Automatic Control*, 56 (6) 1337–1351, 2011.
21. S. Sundhar Ram, A. Nedić, and V.V. Veeravalli, "Distributed Stochastic Subgradient Projection Algorithms for Convex Optimization," *Journal of Optimization Theory and Applications*, 147 (3) 516–545, 2010.
22. A. Nedić and D.P. Bertsekas, "The Effect of Deterministic Noise in Subgradient Methods," *Mathematical Programming*, 125 (1) 75–99, 2010.
23. S. Sundhar Ram, V.V. Veeravalli, and A. Nedić, "Distributed and Recursive Parameter Estimation in Parametrized Linear State-Space Models," *IEEE Transactions on Automatic Control* 55 (2) 488–492, 2010.

24. A. Nedić, A. Ozdaglar, and P.A. Parrilo, "Constrained Consensus and Optimization in Multi-Agent Networks," *IEEE Transactions on Automatic Control* 55 (4) 922–938, 2010.
25. A. Nedić and A. Ozdaglar, "Convergence Rate for Consensus with Delays," *Journal of Global Optimization* 47 (3) 437–456, 2010.
26. A. Nedić, A. Olshevsky, A. Ozdaglar, and J.N. Tsitsiklis, "On Distributed Averaging Algorithms and Quantization Effects," *IEEE Transactions on Automatic Control* 54 (11) 2506–2517, 2009. A short version in *Proceedings of the 47th IEEE CDC Conference* 4825–4830, 2008.
27. S. Sundhar Ram, A. Nedić, and V.V. Veeravalli, "Incremental Stochastic Subgradient Algorithms for Convex Optimization," *SIAM Journal on Optimization* 20 (2) 691–717, 2009.
28. A. Nedić and A. Ozdaglar, "Subgradient Methods for Saddle-Point Problems," *Journal of Optimization Theory and Applications* 142 (1) 205–228, 2009.
29. A. Nedić and A. Ozdaglar, "Distributed Subgradient Methods for Multi-agent Optimization," *IEEE Transactions on Automatic Control* 54 (1) 48–61, 2009.
30. A. Nedić and A. Ozdaglar, "Approximate Primal Solutions and Rate Analysis in Dual Subgradient Methods," *SIAM Journal on Optimization* 19 (4) 1757–1780, 2009.
31. A. Nedić and A. Ozdaglar, "Separation of Nonconvex Sets with General Augmenting Functions," *Mathematics of Operations Research*, 33 (3), 587–605, 2008.
32. A. Nedić and A. Ozdaglar, "A Geometric Framework for Nonconvex Optimization Duality using Augmenting Lagrangian Functions," *Journal of Global Optimization* 40 (4) 545–573, 2008.
33. A. Nedić, A. Ozdaglar and A. Rubinov, "Abstract Convexity for Nonconvex Optimization Duality," *Optimization*, vol. 56, 655–674, 2007.
34. D.P. Bertsekas, V. Borkar, and A. Nedić, "Improved Temporal Difference Methods with Linear Function Approximation," in Learning and Approximate Dynamic Programming by A. Barto, W. Powell, J. Si, (Eds.), IEEE Press, 2004.
35. A. Nedić and D.P. Bertsekas, "Least-Squares Policy Evaluation Algorithms with Linear Function Approximation," *Journal of Discrete Event Systems*, Vol. 13, pp. 79-110, 2003.
36. A. Nedić and D.P. Bertsekas, "Incremental Subgradient Methods for Nondifferentiable Optimization," *SIAM Journal on Optimization*, Vol. 12, No. 1, pp. 109–138, 2001.
37. A. Nedić, and D.P. Bertsekas, "Convergence rate of incremental subgradient algorithms," Stochastic optimization: algorithms and applications, Appl. Optim., 54, pp. 223–264, Kluwer Acad. Publ., Dordrecht, 2001.
38. A. Nedić, D.P. Bertsekas, and V.S. Borkar, "Distributed asynchronous incremental subgradient methods," Inherently parallel algorithms in feasibility and optimization and their applications, Stud. Comput. Math., 8, pp. 381–407, North-Holland, Amsterdam, 2001.
39. F.P. Vasiljev, A. Nedić, and M. Jaćimović, "A Regularized Continuous Linearization Method of the Fourth Order," *Yugosl. J. Oper. Res.*, 7, No. 2, pp. 217–229, 1997.
40. A. Nedić, M. Jaćimović, and A.S. Antipin, "The Continuous Linearization Method of the Fourth Order," *Yugosl. J. Oper. Res.*, 7, No. 1, pp. 39–47, 1997.

41. F.P. Vasil'ev, A. Nedić, and O. Obradovich, "Continuous Regularized Proximal Minimization Method," *Numerical Methods in Mathematical Physics, Comput. Math. Model.*, 8, No. 2, pp. 85–94, 1997.

42. A.S. Antipin and A. Nedić, A., "A Second-Order Continuous Linearization Method for Convex Programming Problems," (Russian) Vestnik Moskov. Univ., Ser. XV Vychisl. Mat. Kibernet., No. 2, 3–12, 1996; translation in *Moscow Univ. Comput. Math. Cybernet.*, No. 2, pp. 1–9, 1996.

43. A. Nedić, "An Optimal Control Problem on a Half-line," *Math. Montisnigri*, 6, pp. 43–55, 1996.

44. F.P. Vasil'ev, A. Nedić, and M. Yachimovich, "A Second-Order Regularized Continuous Linearization Method for Minimization Problems with Inexact Initial Data," (Russian) Vestnik Moskov. Univ. Ser. XV Vychisl. Mat. Kibernet., No. 3, 1996, 5–12, 81; translation in *Moscow Univ. Comput. Math. Cybernet.*, No. 3, pp. 1–7, 1996.

45. A.S. Antipin, A. Nedić, and M. Yachimovich, "A Two-Step Linearization Method for Minimization Problems," (Russian) Zh. Vychisl. Mat. i Mat. Fiz., 36, No. 4, 1996, 18–25; translation in *Comput. Math. Math. Phys.*, 36, No. 4, pp. 431–437, 1996.

46. F.P. Vasil'ev, A. Nedić, and M. Yachimovich, "A Regularized Continuous Linearization Method for Minimization Problems with Inexact Initial Data," (Russian) Zh. Vychisl. Mat. i Mat. Fiz., 36, No. 3, 1996, 35–43; translation in *Comput. Math. Math. Phys.*, 36, No. 3, pp. 309–316, 1996.

47. F.P. Vasil'ev, A. Nedić, and M. Yachimovich, "A Four-Step Regularized Linearization Method for Solving Minimization Problems," (Russian) *Math. Montisnigri*, 6, pp. 109–125, 1996.

48. F.P. Vasil'ev, A. Nedić, and M. Yachimovich, "A Two-Step Regularized Linearization Method for Solving Minimization Problems," (Russian) Zh. Vychisl. Mat. i Mat. Fiz., 36, No. 5, 1996, 9–19; translation in *Comput. Math. Math. Phys.*, 36, No. 5, pp. 559–567, 1996.

49. F.P. Vasil'ev, T.V. Amochkina, and A. Nedić, "On a Regularized Version of the Two-Step Gradient Projection Method," (Russian) Vestnik Moskov. Univ. Ser. XV Vychisl. Mat. Kibernet., No. 1, 1996, 35–42; translation in *Moscow Univ. Comput. Math. Cybernet.*, No. 1, pp. 31–37, 1996.

50. F.P. Vasil'ev, A. Nedić, and M. Yachimovich, "A Third-Order Regularized Continuous Method of Linearization," (Russian) Differ. Uravn., 31, No. 10, 1995, 1622–1627; translation in *Differential Equations*, 31, No. 10, pp. 1582–1588, 1995.

51. A. Nedić and M. Yachimovich, "A Third-Order Continuous Linearization Method for Solving Convex Programming Problems," (Russian) Differ. Uravn., 31, No. 9, 1995, 1483–1487; translation in *Differential Equations*, 31, No. 9, pp. 1437–1441, 1995.

52. F.P. Vasil'ev, and A. Nedić, "A Four-Step Regularized Gradient Projection Method for Solving Minimization Problems with Inexact Initial Data," (Russian) *Math. Montisnigri*, 4, pp. 83–101, 1995.

53. A. Nedić, "A Four-Step Gradient Projection Method for Minimization Problems," (Russian) *Math. Montisnigri*, 4, pp. 55–64, 1995.

54. A.S. Antipin, A. Nedić, and M. Yachimovich, "A Four-Step Linearization Method for Minimization Problems," (Russian) *Math. Montisnigri*, 4, pp. 1–11, 1995.

55. A. Nedić, "The Continuous Projection-Gradient Method of the Fourth Order," *Yugosl. J. Oper. Res.*, 5, No. 1, pp. 27–38, 1995.

56. T.V. Amochkina and A. Nedić, "On a Variant of the Second-Order Continuous Gradient Projection Method and its Discrete Analogue," (Russian) Vestnik Moskov. Univ. Ser. XV Vychisl. Mat. Kibernet., No. 2, 1995, 5–11; translation in *Moscow Univ. Comput. Math. Cybernet.*, No. 2, pp. 1–7, 1995.

57. F.P. Vasiljev and A. Nedić, "A Regularized Continuous Projection-Gradient Method of the Fourth Order," *Yugosl. J. Oper. Res.*, 5, No. 2, pp. 195–209, 1995.

58. F.P. Vasil'yev, A. Nedić, and O. Obradović, "A Continuous Version of the Proximal Point Method for the Minimization Problem with Inexactly Defined Initial Data," *Math. Montisnigri*, 5, pp. 123–139, 1995.

59. F.P. Vasil'ev, T.V. Amochkina, and A. Nedić, "On a Regularized Variant of the Second-Order Continuous Gradient Projection Method," (Russian) Vestnik Moskov. Univ. Ser. XV Vychisl. Mat. Kibernet., No. 3, 1995, 39–46; translation in *Moscow Univ. Comput. Math. Cybernet.*, No. 3, pp. 33–39, 1995.

60. F.P. Vasil'ev, A. Nedić, and M. Yachimovich, "A Three-Step Regularized Linearization Method for solving minimization problems," (Russian) Izv. Vyssh. Uchebn. Zaved. Mat., No. 12, 1994, 25–32; translation in *Russian Math. (Iz. VUZ)*, 38, No. 12, pp. 23–30, 1994.

61. A.S. Antipin, A. Nedić, and M. Yachimovich, "A Three-Step Linearization Method for Minimization Problems," (Russian) Izv. Vyssh. Uchebn. Zaved. Mat., No. 1994, 12, 3–7; translation in *Russian Math. (Iz. VUZ)*, 38, No. 12, pp. 1–5, 1994.

62. F.P. Vasil'ev and A. Nedić, "A Regularized Third-Order Continuous Gradient Projection Method," (Russian) Differentsial'nye Uravneniya, 30, No. 12, 1994, 2033–2042; translation in *Differential Equations*, 30, No. 12, pp. 1869–1877, 1994.

63. A. Nedić, "A Third-Order Continuous Gradient Projection Method for Minimization Problems," (Russian) Differentsial'nye Uravneniya, 30, No. 11, 1994, 1914–1922; translation in *Differential Equations*, 30, No. 11, pp. 1767–1774, 1994.

64. F.P. Vasil'ev and A. Nedić, "A Version of the Regularized Gradient Projection Method," (Russian) Zh. Vychisl. Mat. i Mat. Fiz., 34, No. 4, 1994, 511–519; translation in *Comput. Math. Math. Phys.*, 34, No. 4, pp. 431–439, 1994.

65. A. Nedić, "A Regularized Continuous Gradient Projection Method for Minimization Problems with Inexact Initial Data," (Russian) Vestnik Moskov. Univ. Ser. XV Vychisl. Mat. Kibernet., No. 1, 1994, 3–10; translation in *Moscow Univ. Comput. Math. Cybernet.*, No. 1, pp. 1–7, 1994.

66. F.P. Vasil'ev and A. Nedić, "A Regularized Continuous Gradient Projection Method of the Second Order," (Russian) Vestnik Moskov. Univ. Ser. XV Vychisl. Mat. Kibernet., No. 2, 1994, 3–11; translation in *Moscow Univ. Comput. Math. Cybernet.*, No. 2, pp. 1–9, 1994.

67. F.P. Vasil'ev and A. Nedić, "A Three-Step Regularized Gradient Projection Method for Solving Minimization Problems with Inexact Initial Data," (Russian) Izv. Vyssh. Uchebn. Zaved. Mat., 1993, No. 12, 35–43; translation in *Russian Math. (Iz. VUZ)*, 37, No. 12, pp. 34–43, 1993.

68. A. Nedić, "A Three-Step Gradient Projection Method for Minimization Problems," (Russian) Izv. Vyssh. Uchebn. Zaved. Mat., No. 10, 1993, 32–37; translation in *Russian Math. (Iz. VUZ)*, 37, No. 10, pp. 30–36, 1993.

Conference Papers (peer reviewed)

1. A. Kannan, A. Nedić, and U.V. Shanbhag, "Distributed Stochastic Optimization under Imperfect Information," accepted at the IEEE Conference on Decision and Control (CDC 2015), to be held in December 2015
2. M.T. Hale, A. Nedić, and M. Egerstedt, "Hybrid Centralized/Decentralized Multi-Agent Optimization with Communication Delays," accepted at the IEEE Conference on Decision and Control (CDC 2015), to be held in December 2015
3. P.E. Pare, C.L. Beck, and A. Nedić, "Stability Analysis and Control of Virus Spread over Time-Varying Networks," accepted at the IEEE Conference on Decision and Control (CDC 2015), to be held in December 2015
4. I. Necoara and A. Nedić, "A fully distributed dual gradient method with linear convergence for large-scale separable convex problems," Proceedings of the 14th European Control Conference (ECC) 2015, Johannes Kepler University, Linz, Austria, July 15–17, 2015, pp. 305–309.
5. A. Nedić, A. Olshevsky and C.A. Uribe "Nonasymptotic Convergence Rates for Cooperative Learning Over Time-Varying Directed Graphs," Proceedings of the 2015 American Control Conference (ACC), Chicago, IL, July 1–3, 2015, pp. 5884–5889.
6. A. Nedić, S. Lee, and M. Raginsky, "Decentralized Online Optimization with Global Objectives and Local Communication," Proceedings of the 2015 American Control Conference (ACC), Chicago, IL, July 1–3, 2015, pp. 4497–4503.
7. K. Cohen, A. Nedić, and R. Srikant, "Distributed Learning Algorithms for Spectrum Sharing in Spatial Random Access Networks," Proceedings of the 13th International Symposium on Modeling and Optimization in Mobile, Ad Hoc and Wireless Networks (WiOpt), IIT Bombay, 25–29 May 2015, pp. 513–520, **Best Paper Award** (two are given).
8. C. Wilson, V.V. Veeravalli, and A. Nedić, "Dynamic Stochastic Optimization," Proceedings of the 53rd IEEE Conference on Decision and Control (CDC) 2014, Los Angeles, California, December 15–17, 2014, pp. 173–178.
9. C. Singh, A. Nedić, and R. Srikant, "Random Block Coordinate Gradient Projection Algorithms," Proceedings of the 53rd IEEE Conference on Decision and Control (CDC) 2014, Los Angeles, California, December 15–17, 2014, pp. 185–190.
10. J. Liu, A.S. Morse, A. Nedić, and T. Başar, "Internal Stability of Linear Consensus Processes," Proceedings of the 53rd IEEE Conference on Decision and Control (CDC) 2014, Los Angeles, California, December 15–17, 2014, pp. 922–927.
11. J. Liu, A. Nedić, and T. Başar, "Complex Constrained Consensus," Proceedings of the 53rd IEEE Conference on Decision and Control (CDC) 2014, Los Angeles, California, December 15–17, 2014, pp. 1464–1469.
12. J. Liu, A. S. Morse, A. Nedić, T. Başar, "Stability of a Distributed Algorithm for Solving Linear Algebraic Equations," Proceedings of the 53rd IEEE Conference on

Decision and Control (CDC) 2014, Los Angeles, California, December 15–17, 2014, pp. 3707–3712.

13. F. Yousefian, A. Nedić, U.V. Shanbhag, "Optimal robust smoothing extragradient algorithms for stochastic variational inequality problems," Proceedings of the 53rd IEEE Conference on Decision and Control (CDC) 2014, Los Angeles, California, December 15–17, 2014, pp. 5831–5836.
14. J. Liu and A Nedić, "A Lyapunov Approach to Discrete-Time Linear Consensus," Proceedings of the 2nd IEEE Global Conference on Signal and Information Processing (GlobalSIP) 2014, Atlanta, Georgia, December 3–5, 2014, pp. 842–846.
15. M. Raginsky and A. Nedić, "Online Discrete Optimization in Social Networks," Proceedings of the 2014 American Control Conference (ACC), Portland, Oregon, June 4–6, 2014, pp. 3796–3801.
16. C. Singh, A. Nedić, and R. Srikant "LP-relaxation based Distributed Algorithms for Scheduling in Wireless Networks," Proceedings of IEEE INFOCOM, Toronto, Canada, April 27–May 2, 2014, pp. 1905–1913.
17. A. Nedić and A. Olshevsky, "Distributed optimization over time-varying directed graphs," Proceedings of the 52nd IEEE Conference on Decision and Control, Florence, Italy, December 10–13, 2013, pp. 6855–6860.
18. S. Lee and A. Nedić, "Gossip-based Random Projection Algorithm for Distributed Optimization: Error Bounds," Proceedings of the 52nd IEEE Conference on Decision and Control, Florence, Italy, December 10–13, 2013, pp. 6874–6879.
19. F. Yousefian, A. Nedić and U.V. Shanbhag, "A Regularized Smoothing Stochastic Approximation (RSSA) Algorithm for Stochastic Variational Inequality Problems," Proceedings of the 2013 Winter Simulation Conference, R. Pasupathy, S.-H. Kim, A. Tolk, R. Hill, and M.E. Kuhl, eds., Washington, DC, December 8–11, 2013, pp. 933–944. **The Best Theoretical Paper of the 2013 Winter Simulation Conference**.
20. A. Nedić and A. Olshevsky, "Distributed Optimization of Strongly Convex Functions on Directed Time-Varying Graphs," Proceedings of the inaugural IEEE Global Conference on Signal and Information Processing (GlobalSIP), Austin, Texas, December 3–5, 2013, pp. 329–332.
21. S. Lee and A. Nedić, "Distributed Mini-batch Random Projection Algorithms for Reduced Communication Overhead," Proceedings of the inaugural IEEE Global Conference on Signal and Information Processing (GlobalSIP), Austin, Texas, December 3–5, 2013, pp. 559–562.
22. T-H. Chang, A. Nedić, and A. Scaglione, "Distributed Sparse Regression by Consensus-Based Primal-Dual Perturbation Optimization," Proceedings of the inaugural IEEE Global Conference on Signal and Information Processing (GlobalSIP) Conference, Austin, Texas, December 3–5, 2013, pp. 289–292.
23. B. Touri, F. Farnoud, A. Nedić, and O. Milenkovic, "A General Framework for Distributed Vote Aggregation", Proceedings of the IEEE American Control Conference (ACC), Washington, DC, USA, June 17–19, 2013, pp. 3833–3838.
24. S.R. Etesami, T. Başar, A. Nedić, and B. Touri, "Termination Time of Multidimensional Hegselmann-Krause Opinion Dynamics," Proceedings of the IEEE American Control Conference (ACC), Washington, DC, USA, June 17–19, 2013, pp. 1257–1262.

25. F. Yousefian, A. Nedić, and U.V. Shanbhag, "A distributed adaptive steplength stochastic approximation method for monotone stochastic Nash Games," Proceedings of the IEEE American Control Conference (ACC), Washington, DC, USA, June 17–19, 2013, pp. 4772–4777.
26. S. Lee and A. Nedić, "Epoch Gradient Descent for Smoothed Hinge-loss Linear SVMs," Proceedings of the IEEE American Control Conference (ACC), Washington, DC, USA, June 17–19, 2013, pages 4796–4801.
27. S. Lee and A. Nedić, "DrSVM: Distributed Random Projection Algorithms for SVMs," Proceedings of the 51st IEEE Conference on Decision and Control (CDC), Maui, Hawaii, December 9–13, 2012, pp. 5286–5291.
28. A. Nedić and B. Touri, "Multi-Dimensional Hegselmann-Krause Dynamics," Proceedings of the 51st IEEE Conference on Decision and Control (CDC), Maui, Hawaii, December 9–13, 2012, pp. 68–73.
29. B. Touri, T. Başar, and A. Nedić, "On Averaging Dynamics in General State Spaces," Proceedings of the 51st IEEE Conference on Decision and Control (CDC), Maui, Hawaii, December 9–13, 2012, pp. 62–67.
30. J. Koshal, A. Nedić, and U.V. Shanbhag, "A Gossip Algorithm for Aggregative Games on Graphs," Proceedings of the 51st IEEE Conference on Decision and Control (CDC), Maui, Hawaii, December 9–13, 2012, pp. 4840–4845.
31. M. Rabbat and A. Nedić, "Convergence Properties of Normalized Random Incremental Gradient Algorithms for Least-Squares Source Localization," to appear in the Proceedings of 2012 Asilomar Conference on Signals, Systems, and Computers, November 4–7, 2012, Pacific Grove, CA, pp. 1417–1421.
32. V. Skachek, O. Milenković and A. Nedić, "Hybrid Noncoherent Network Coding," Proceedings of the 2012 International Symposium on Network Coding (NETCOD), Boston, June 29–30, 2012.
33. A. Nedić and D. Bauso, "Constrained Consensus for Bargaining in Dynamic Coalitional TU Games," Proceedings of the 50th IEEE Conference on Decision and Control and European Control Conference (CDC-ECC), Orlando, Florida, December 2011, pp. 229–234.
34. B. Touri and A. Nedić, "Alternative Characterization of Ergodicity for Doubly Stochastic Chains," Proceedings of the 50th IEEE Conference on Decision and Control and European Control Conference (CDC-ECC), Orlando, Florida, December 2011, pp. 5371–5376.
35. B. Touri and A. Nedić, "On Existence of a Quadratic Comparison Function for Random Weighted Averaging Dynamics and Its Implications," Proceedings of the 50th IEEE Conference on Decision and Control and European Control Conference (CDC-ECC), Orlando, Florida, December 2011, pp. 3806–3811.
36. F. Yousefian, A. Nedić and U.V. Shanbhag, "A regularized adaptive steplength stochastic approximation scheme for monotone stochastic variational inequalities," Proceedings of the 2011 Winter Simulation Conference, S. Jain, R. R. Creasey, J. Himmelspach, K. P. White, and M. Fu, eds., 2011, pp. 4110–4121.
37. J. Koshal, A. Nedić, and U.V. Shanbhag, "Single Timescale Stochastic Approximation for Stochastic Nash Games in Cognitive Radio Systems," Proceedings of the 17th Digital Signal Processing Conference (DSP), July 2011.

38. K. Srivastava, A. Nedić, and D. Stipanović, "Distributed Min-Max Optimization in Networks," Proceedings of the 17th Digital Signal Processing Conference (DSP), July 2011
39. B. Touri and A. Nedić "Approximation and Limiting Behavior of Random Models," *Proceedings of the 49th IEEE Conference on Decision and Control* (CDC), Atlanta, Georgia, December 2010, pp. 2656–2663.
40. B. Touri and A. Nedić "When Infinite Flow is Sufficient for Ergodicity," *Proceedings of the 49th IEEE Conference on Decision and Control* (CDC), Atlanta, Georgia, December 2010, pp. 7479–7486.
41. J. Koshal, A. Nedić and U.V. Shanbhag, "Single Timescale Regularized Stochastic Approximation Schemes for Monotone Nash games under Uncertainty," *Proceedings of the 49th IEEE Conference on Decision and Control* (CDC), Atlanta, Georgia, December 2010, pp. 231–236.
42. K. Srivastava, A. Nedić, and Dušan Stipanović, "Distributed Constrained Optimization over Noisy Networks," *Proceedings of the 49th IEEE Conference on Decision and Control* (CDC), Atlanta, Georgia, December 2010, pp. 1945–1950.
43. A. Nedić, "Random Projection Algorithms for Convex Set Intersection Problems," *Proceedings of the 49th IEEE Conference on Decision and Control* (CDC), Atlanta, Georgia, December 2010, pp. 7655–7660.
44. F. Yousefian, A. Nedić, and U.V. Shanbhag, "Convex Non-differentiable Stochastic Optimization: A Local Randomized Smoothing Technique," *Proceedings of the IEEE American Control Conference* (ACC), Baltimore, Maryland, July 2010, pp. 4875–4880.
45. S. Sundhar Ram, A. Nedić, and V.V. Veeravalli, "Asynchronous Gossip Algorithms for Stochastic Optimization: Constant Stepsize Analysis," in edited book *Recent Advances in Optimization and its Applications in Engineering*, volume of the 14th Belgian-French-German Conference on Optimization, M. Diehl, F. Glineur, E. Jarlebring and W. Michiels (Eds.), 2010, pp. 51–60.
46. S. Sundhar Ram, A. Nedić, and V.V. Veeravalli, "Asynchronous Gossip Algorithms for Stochastic Optimization," *Proceedings of the 48th IEEE Conference on Decision and Control* (CDC), Shanghai, China, December 2009, pp. 3581–3586.
47. J. Koshal, A. Nedić, and U.V. Shanbhag, "Distributed Multi-User Optimization: Algorithms and Error Analysis," *Proceedings of the 48th IEEE Conference on Decision and Control* (CDC), Shanghai, China, December 2009, pp. 4372–4377.
48. B. Touri and A. Nedić, "Distributed Consensus over Network with Noisy Links," *12th International Conference on Information Fusion*, Seattle, Washington, July 2009, pp. 146–154.
49. A. Nedić and V.G. Subramanian, "Approximately Optimal Utility Maximization" *IEEE Information Theory Workshop on Networking and Information Theory*, Volos, Greece, June, 2009, pp. 206–210.
50. S. Sundhar Ram, A. Nedić, and V.V. Veeravalli, "Distributed Subgradient Projection Algorithm for Convex Optimization," *Proceedings of the IEEE International Conference on Acoustics, Speech and Signal Processing* (ICASSP), Taipei, Taiwan, April 2009, pp. 3653–3656.

51. S. Sundhar Ram, V.V. Veeravalli, and A. Nedić, "Distributed Non-Autonomous Power Control through Distributed Convex Optimization," *Proceedings of the 28th IEEE Conference on Computer Communications* (INFOCOM) Mini-Conference, Rio de Janeiro, April 2009, pp. 3001–3005.
52. D. Acemoglu, A. Nedić, and A. Ozdaglar, "Convergence of Rule-of-Thumb Learning Rules in Social Networks," *Proceedings of 47th Conference on Decision and Control* (CDC), Cancun, Mexico, December 2008, pp. 1714–1720.
53. A. Nedić, A. Olshevsky, A. Ozdaglar, J.N. Tsitsiklis, "Distributed Subgradient Methods and Quantization Effects," *Proceedings of 47th Conference on Decision and Control* (CDC), Cancun, Mexico, December 2008, pp. 4177–4184.
54. P.A. Bliman, A. Nedić, and A. Ozdaglar, "Rate of Convergence for Consensus with Delays," *Proceedings of 47th Conference Decision and Control* (CDC), Cancun, Mexico, December 2008, pp. 4849–4854.
55. S. Sundhar Ram, V.V. Veeravalli, and A. Nedić, "Incremental recursive prediction error algorithm for parameter estimation in sensor networks," *Proceedings of the 11th International Conference on Information Fusion*, Cologne, Germany, June 30-July 3, 2008, pp. 1–8.
56. A. Nedić and A. Ozdaglar, "Subgradient Methods in Network Resource Allocation: Rate Analysis," *proceeding of the 42nd Annual Conference on Information Sciences and Systems* (CISS), Princeton, New Jersey, March 2008, pp. 1189-1194.
57. A. Nedić and A. Ozdaglar, "On the Rate of Convergence of Distributed Subgradient Methods for Multi-Agent Optimization," *Proceedings of 46th Conference on Decision and Control* (CDC), New Orleans, December 2007, pp. 4711–4716.
58. S. Sundhar Ram, V.V. Veeravalli, and A. Nedić, "Incremental Robbins-Monro Gradient Algorithm for Regression in Sensor Networks," *Proceedings of the 2nd IEEE International Workshop on Computational Advances in Multi-Sensor Adaptive Processing* (CAMPSAP), St. Thomas, U.S. Virgin Islands, December 2007, pp. 309–312.
59. S.S. Ram, A. Nedić, and V.V. Veeravalli, "Stochastic Incremental Gradient Descent for Estimation in Sensor Networks," *Proceedings of the Fourty-First Asilomar Conference on Signals, Systems and Computers*, Pacific Grove, CA, December 2007, pp. 582–586.
60. A. Nedich, M.K. Schneider, and R.B. Washburn, "Farsighted Sensor Management Strategies for Move/Stop Tracking," *Proceedings of the Eight International Conference on Information Fusion*, Philadelphia, PA, July 2005, pp. 566–573.
61. A. Nedić-Geary, and D.P. Bertsekas, "Incremental subgradient methods for nondifferentiable optimization," *Proceedings of the 38th IEEE Conference on Decision and Control* (CDC), Phoenix, AZ, December 1999, pp. 907–912.

Conference Papers (not peer reviewed)

1. B. Touri and A. Nedić, "Discrete-Time Opinion Dynamics," Proceedings of 2012 Asilomar Conference on Signals, Systems, and Computers, November 4–7, 2012, Pacific Grove, CA, pages 1172–1176.

2. B. Touri, A. Nedić, and S.S. Ram, "Asynchronous stochastic convex optimization over random networks: Error bounds," *In Proceedings of the IEEE Information Theory and Applications Workshop* (ITA), February 2010.

GRADUATE STUDENTS and POST-DOCTORATE RESEACHERS

Current Students

- *Lucas Buccafusca* (ECE, UIUC), Ph.D. expected 2018 (co-advised with Prof. Beck)
- *Philip Pare* (ECE, UIUC), Ph.D. expected 2018 (co-advised with Prof. Beck)
- *Shahzad Bhatti* (ISE, UIUC), Ph.D. expected 2017
- *Cesar Uribe* (ECE, UIUC), Ph.D. expected 2017 (co-advised with Prof. Olshevsky)

Graduated Students

- *James Riddle* (ISE, UIUC), M.S. May 2014.
- *Elham Zafarani* (ISE, UIUC), M.S. May 2014.
- *Soomin Lee* (ECE, UIUC), Ph.D. in May 2013; thesis title "Optimization over Networks: Efficient Algorithms and Analysis," now a post-doctorate researcher at Duke University with Prof. M.M. Zavlanos.
- *Seyed Farzad Yousefian* (ISE, UIUC), Ph.D. in June 2013 (co-advised with Prof. Uday Shanbhag); thesis title "Stochastic Approximation Schemes for Stochastic Optimization and Variational Problems: Adaptive Steplenghts, Smoothing, and Regularization," joining the Industrial Engineering and Management Department, Oklahoma State University in Fall 2015
- *Jayash Koshal* (ISE, UIUC), Ph.D. in August 2012 (co-advised with Prof. Uday Shanbhag); thesis title "Distributed Algorithms For Multi-Agent Systems: Optimization and Competition," now at Bloomberg, New York, NY
- *Seyed Rasoul Etesami* (ISE, UIUC), M.S. in May 2012; thesis title "Analysis of the Discrete and Continuous Opinion Dynamic Models," continued as a Ph.D. student at ECE, UIUC.
- *Srivastava Kunal* (ISE, UIUC), Ph.D. in August 2011, (co-advised with Prof. Dušan Stipanović); thesis title "Distributed Optimization with Applications to Sensor Networks and Machine Learning," now at UTRC, East Hartford, CT.
- *Behrouz Touri* (ISE, UIUC), Ph.D. in September 2011; thesis title "Product of Random Stochastic Matrices and Distributed Averaging," now an Assistant Professor at the Department of Electrical, Computer, and Energy Engineering at the University of Colorado Boulder.
- *Sundhar Ram Srinivasan* (ECE, UIUC), Ph.D. 2010 (co-advised with Prof. Venugopal V. Veeravalli); thesis title "Distributed Optimization in Multi-agent Systems: Applications to Distributed Regression," now a Data Scientist at Facebook.

Postdoctorate Researchers

- *Wei (Wilbur) Shi* (CSL, UIUC), starting in Sept. 2015, co-mentored with Prof. Olshevsky.
- *Sadegh Bolouki* (CSL, UIUC), Aug. 2015 – present, co-mentored with Prof. Başar.

- *Yakov Shay-El (Kobi) Cohen* (CSL, UIUC), 2014–present, co-mentored with Prof. Srikant, now Assistant Professor at the Electrical and Computer Engineering Department at Ben-Gurion University of the Negev, Israel.
- *Ji Liu* (CSL, UIUC), 2013 – present, co-mentored with Prof. Başar.
- *Chandramani Singh* (CSL, UIUC), 2013–2014, co-mentored with Prof. Srikant, now Assistant Professor at the Department of Electronic Systems Engineering, Indian Institute of Science, Bangalore, India.
- *Soomin Lee* (CSL, UIUC), 2013–2014, co-mentored with Prof. Veeravalli and Prof. Raginsky.
- *Behrouz Touri* (CSL, UIUC), 2011–2012 co-mentored with Prof. Milenković and Prof. Langbort.
- *Vitaly Skachek* (CSL, UIUC), 2011–2012, co-mentored with Prof. Milenković.

Visitors

- *Matthew Hale* (CSL UIUC), PhD student at Georgia Tech.
- *Choon-Yik Tang* (CSL UIUC), Associate Professor at Oklahoma State University

Advised Students' Awards

- *Behrouz Touri*: Ph.D. thesis awarded "The best of the best: Internationally top-ranked research institutes select their best thesis annually for publication in this series" from: http://www.springer.com/series/8790
- *Behrouz Touri*: Finalist for the best student paper award of IEEE Conference on Decision and Control, Atlanta, Georgia Dec 2010
- *Behrouz Touri*: Short-listed for the best paper award of ISIF Conference on Information Fusion 2009, Seattle, Washington July 2009
- *Farzad Yousefian*: Best paper in a session at the 2010 American Control Conference (ACC), June 30–July 2, 2010, Baltimore, Maryland, USA,
  link: http://a2c2.org/conferences/acc2010/SessionBest.html

INVITED LECTURES AND TALKS

July 2015, *Distributed Optimization in Directed Graphs: Push-Sum Based Algorithms*, Conference on Modeling and Optimization: Theory and Applications (MOPTA), Lehigh University, Bethlehem, PA, July 20–22, 2015

July 2015, *Random Block-Coordinate Gradient Projection Algorithms*, the 22nd International Symposium on Mathematical Programming (ISMP), Pittsburgh, PA, July 12–17, 2015

June 2015, *Games on Time-Varying Networks*, a tutorial lecture at the Workshop on Game Models and Applications to Networked Systems, the 2015 American Control Conference, Chicago, Il, June 29, 2015

April 2015, *Distributed Optimization in Directed Graphs: Push-Sum Based Algorithms*, Seminar at the Dept. of Mathematical Sciences, University of Texas at Dallas, April 17, 2015.

April 2015, *Distributed Optimization in Directed Graphs: Push-Sum Based Algorithms*, Seminar at the Dept. of Industrial and Manufacturing Engineering, Pennsylvania State University, April 2, 2015.

March 2015, *Distributed Optimization in Directed Graphs: Push-Sum Based Algorithms*, invited talk in a Featured Minisymposia on Distributed Methods for Optimization, SIAM Conference on Computational Science and Engineering, Salt Lake City, Utah, March 14-18, 2015

March 2015, *A Lyapunov Approach to Discrete-Time Linear Consensus*, WEbEx seminar series on control systems, Missouri University of Science and Technology, March 10, 2015

February 2015, *Distributed Optimization over Networks*, invited lecture at the Oberwolfach Workshop on Control Theory: A Mathematical Perspective on Cyber-Physical Systems, Oberwolfach Mathematical Institute, Oberwolfach, Germany, February 22-28, 2015

December 2014, *Non-asymptotic Rates for Cooperative Learning over Time-Varying Graphs* **one of the Key Note Speakers** at the 2nd IEEE Global Conference on Signal and Information Processing, GlobalSIP'14, Atlanta, Georgia, December 3–5, 2014.

December 2014 *A Lyapunov Approach to Discrete-Time Linear Consensus* The 2nd IEEE Global Conference on Signal and Information Processing, GlobalSIP'14, Atlanta, Georgia, December 3–5, 2014,

November 2014 *Distributed Learning in Graphs: Convergence and Non-asymptotic Rates* seminar at the ISE Department, Viterbi School of Engineering, University of Southern California, Los Angeles, CA, November 13, 2014.

November 2014 *Stochastic Subgradient Mirror-Descent Algorithm with Weighted Averaging* Annual INFORMS Meeting, San Francisco, CA, November 9–12, 2014.

September 2014 *Distributed Optimization in Directed Graphs: Push-Sum Based Algorithms* Workshop on Approximation, Integration and Optimization, ICERM, Brown University, Providence, RI, September 29 – October 3, 2014.

September 2014, *Lyapunov Approach to Consensus Problems* DCL Seminar, Georgia Institute of Technology, Atlanta, GA, September 16, 2014

August 2014, *Lyapunov Approach to Consensus Problems* Systems seminar presentation at McGill University, Montreal, Canada, August 14, 2014

August 2014, *Distributed Optimization in Directed Graphs: Push-Sum Based Algorithms* GERAD Seminar presentation at Ecole Polytechnique, University of Montreal, Canada, August 13, 2014

July 2014, invited lecturer at IV Latin American Workshop on Optimization and Control, Lima, Peru, July 15–18, 2014

June 2014, lecturer for the CIME-EMS Summer School in Applied Mathematics on *Cen-*

tralized and Distributed Multi-Agent Optimization: Models and Algorithms Cetraro, Italy, June 23-28, 2014

June 2014, lecturer for the IMA New Directions Short Course on *Topics in Control Theory*, Institute for Mathematics and its Applications, University of Minnesota, June 2–6, 2014

May 2014, *Distributed Optimization over Directed Graphs* SIAM Conference on Optimization, San Diego, CA, May 19–22, 2014

April 2014, *Distributed Optimization Over Graphs* The 3rd Midwest Workshop on Control and Game Theory, Ohio State University, Columbus, OH, April 26–27, 2014

February 2014, *Distributed Optimization Over Graphs* seminar at the Data and Information System Laboratories (DAIS), University of Illinois at Urbana-Champaign, February 19, 2014

October 2013, *First Order Methods for Distributed Network Optimization* presentation at the Workshop on Parallel and Distributed Algorithms for Inference and Optimization, Simons Institute, Berkeley, CA, October 21–24, 2013

October 2013, *Distributed Optimization in Networked Systems* seminar lecture at the Department of Mathematics, University of Montenegro, Podgorica, Montenegro, October 1, 2013

September 2013, *Distributed Optimization in Networked Systems* one of the plenary talks at the OPTIMA 2013 Conference, Petrovac, Montenegro, September 23–28, 2013

August 2013, *Distributed Optimization in Networked Systems*, Tutorial lecture in the Summer School on Multi-Agent Networked Systems, University of Illinois at Urbana-Champaign, Urbana, IL, USA, August 15–18, 2013

July 2013, *Distributed Algorithms for Aggregative Games on Graphs*, The fourth International Conference on Continuous Optimization (ICCOPT 2013), Caparica-Lisbon, Portugal, July 27–August 1, 2013

July 2013, *First-order methods for distributed in-network optimization*, HYCON2 Workshop on Distributed Optimization in Large Networks and its Applications, European Control Conference (ECC13), Zurich, Switzerland, July 17–19, 2013

May 2013, *Distributed Optimization over Directed Networks*, Seminar at the Department of Information Technology Center, Uppsala University, May 2, 2013

February 2013, *On Hegselmann-Krause Dynamics*, BIRS Workshop on "Asymptotics of Large-Scale Interacting Networks", Banff International Research Station, Banff, Canada, February 24–March 1, 2013

February 2013, *On Stochastic Subgradient Mirror-Descent Algorithm with Weighted Averaging*, Workshop Information Theory and Applications organized by the University of California at San Diego, San Diego, California, February 10–15, 2013

December 2012, *A Gossip Algorithm for Aggregative Games on Graphs*, Workshop on Complementarity and Its Applications, National University of Singapore, Singapore, December 17–21, 2012; this work was also presented at the 51st EEE CDC Conference, December, 2012

December 2012, *Multi-Dimensional Hegselmann-Krause Dynamics*, the 51st IEEE Conference on Decision and Control (CDC), Maui, Hawaii, December 9–13, 2012

September 2012, *Distributed Optimization and Dynamics over Networks*, seminar at Royal Institute of Technology KTH, School of Electrical Engineering, September 24, 2012

September 2012, *Distributed Optimization over a Network*, seminar at Information Technology Department of Uppsalla University, Uppsala, Sweden, September 19, 2012

August 2012, *Distributed Algorithms for Aggregative Games on Graphs*, The International Symposium on Mathematical Programming (ISMP), Berlin, Germany, August 19–24, 2012

April 2012, *Dynamic Coalitional TU Games: Distributed Bargaining among Players*, The 1st Midwest Workshop on Control and Game Theory (WCGT) 2012, Coordinated Science Laboratory, UIUC, April 28–29, 2012

April 2012, *Distributed Optimization over a Network*, Seminar Series of Automatic Control Laboratory and Institute for Operations Research at ETH Zurich, Switzerland, April 2–3, 2012

March 2012, *Distributed Optimization over a Network*, Bellairs Workshop, McGill University Bellairs Institute of Research, Barbados, March 11–18, 2012

February 2012, *Distributed Optimization over a Network*, Seminar at Systems Engineering and Applied Sciences (SEAS), University of Pennsylvania, Philadelphia, Pennsylvania, February 27, 2012

February 2012, *Distributed Optimization over a Multi-Agent Network*, Seminar at Dynamic Control Laboratory, Georgia Institute of Technology, Atlanta, Georgia, February 24, 2012

February 2012, *On Hegselmann-Krause Opinion Dynamics*, Information Theory and Applications Workshop, University of California at San Diego, California

February 2012, *Optimization in Presence of Random Constraints, Seminar at UCLA Center for Engineering Economics, Learning and Networks*, UCLA, Los Angeles, California

February 2012, *Optimization: New Challenges and Trends, Seminar Series at the Department of Electrical Engineering*, UCLA, Los Angeles, California

November 2011, *Optimization in Presence of Random Constraints*, The 6th Rutgers-Simmons Institute Workshop on Stochastic Systems, Hoboken, New Jersey

November 2011, *An Upper-bound on the Termination Time of the Hegselmann-Krause Dynamics*, the Annual Asilomar Conference on Signals, Systems, and Computers, Pacific

Grove, CA

October 2011, *Nesterov's Method in Compressive Sensing*, the 2011 IEEE Information Theory Workshop (ITW 2011) Paraty, Brazil

August 2011, INFORMS 2011 Midwestern Conference, Ohio State University, Columbus, Ohio, (two invited talks):
- *Distributed Min-Max Optimization in Networks*
- *Distributed Bargaining among Players' Neighbors*

July 2011, *Distributed Min-Max Optimization in Networks*, the 17th International Conference on Digital Signal Processing (DSP), Corfu, Greece.

February 2011, *Random Algorithms for Convex Optimization*, Information Theory and Applications Workshop, University of California at San Diego.

October 2010, *Randomized Algorithms for Convex Optimization*, Artificial Intelligence and Information Systems Seminar, Computer Science Department at UIUC, October 22, 2010.

August 2010, *Asynchronous Stochastic Convex Optimization over Random Networks*, Modeling and Optimization: Theory and Applications (MOPTA) August 18–20, 2010, Lehigh University, Bethlehem PA.

July 2010, *Randomized Algorithms for Convex Optimization*, International Conference on Continuous Optimization (ICCOPT) Santiago, Chile, July 26–29, 2010.

July 2010, *Ergodicity, Infinite Flow and Consensus in Random Networks*, Spain, Italy and Netherlands meeting on Game Theory (SING6) 2010, Palermo Italy.

May 2010, *Random Projection Algorithms for Convex Minimization Problems*, Workshop on Large-scale optimization (dedicated to Paul Tseng), Shanghai, China, May 21, 2010.

April 2010, *Random Projection Algorithms for Convex Minimization Problems*, Invited seminar talk at CSL, UIUC.

April 2010, *Random Projection Algorithms for Convex Minimization Problems*, Invited seminar presentation at the Department of Mathematics, Massachusetts Institute of Technology, Cambridge, MA.

February 2010, *Asynchronous Stochastic Convex Optimization over Random Networks: Error Bounds*, Information Theory and Applications Workshop, San Diego, CA.

October 2009, INFORMS Annual Meeting, San Diego CA (two talks):
(a) *Asynchronous Gossip Algorithms Stochastic Optimization*
(b) *Markov Randomized Incremental Method.*

September 2009, *Asynchronous Stochastic Subgradient Algorithms*, Belgium-French-German conference on Optimization, Lueven, Belgium.

July 2009, The 12th International Information FUSION Conference, Seattle, WA, (a talk and a tutorial):

(a) Tutorial on *Distributed in Network Information Processing*

(b) Talk on *Distributed Consensus over network with Noisy Links*.

May 2009, *Asynchronous Gossip Algorithms for Stochastic Optimization*, International Conference on Game Theory for Networks, Istanbul, Turkey.

April 2009, *Distributed Subgradient Projection Algorithms for Convex Optimization*, ICASSP Conference 2009, Taipei, Taiwan.

March 2009, *Distributed methods for Convex Optimization*, Invited seminar presentation at the University of Illinois at Chicago.

February 2009, *Rule-of-Thumb Learning in Network*, Information Theory and Applications Workshop, University of California at San Diego, CA.

December 2008, *Distributed Subgradient Methods and Quantization Effects*, IEEE Conference on Decision and Control (CDC), Cancun, Mexico.

October 2008, *Rule-of-Thumb Learning in Social Networks*, INFORMS Annual Meeting, Washington DC.

August 2008, Invited Lecturer for the Optimization module for the Network Mathematics graduate programme, National University of Ireland at Maynooth, Ireland.

July 2008, *Approximate Primal Solutions in Dual Subgradient Methods*, Eighteenth international symposium on Mathematical Theory of Networks and Systems (MTNS), Virginia Tech, Blacksburg, VA.

May 2008, *Distributed Multi-Agent Optimization*, SIAM Conference on Optimization, Boston, MA.

April 2008, *Distributed Methods for Multi-Agent Optimization*, Ohio State University, Invited seminar presentation at the ECE Department, Columbus, OH.

March 2008, *A Unifying Framework for Constrained Optimization Duality and Penalty*, INFORMS Optimization Conference on Theory, Computation, and Emerging Applications, Atlanta, GA.

December 2007, *Convergence Rate of Distributed Subgradient Methods for Multi-Agent Optimization*, IEEE Conference on Decision and Control (CDC), New Orleans, LA.

November 2007, *Policy Evaluation Algorithms Using Function Approximations*, INFORMS Annual Conference, Seattle, WA.

October 2007, *Distributed Methods for Multi-Agent Optimization*, Seminar presentation at CSL, University of Illinois at Urbana-Champaign.

August 2007, *Distributed Subgradient Methods for Multi-Agent Optimization*, the 2nd International Conference on Continuous Optimization, Hamilton, Canada.

July 2007, *Distributed Subgradient Methods for Multi-Agent Optimization*, the 22nd European Conference on Operational Research, Prague, Czech Republic

July 2007, *A Unifying Framework for Constrained Optimization Duality and Penalty*, Joint EUROPT-OMS Meeting, the 2nd Conference on Optimization Methods & Software and the 6th EUROPT Workshop on Advances in Continuous Optimization, Prague, Czech Republic.

March 2007, *Error Estimates of Approximate Primal Solutions in Dual Subgradient Methods*, Conference on Complementarity Duality and Global Optimization, Gainesville, Florida.

November 2006, *Incremental Subgradient Methods for Nondifferentiable Optimization*, the 5th Ballarat Workshop on Global and Nonsmooth Optimization, Ballarat, Australia.

PROFESSIONAL SERVICE

Editorial and other Positions

- Elected by the IEEE Control Systems Society (CSS) membership to serve on its Board of Governors (BOG) for the term January 1, 2016 – December 30, 2018
- Elected by the IEEE Control Systems Society to be Liaison Representative at INFORMS starting 2015
- Associate Editor for IEEE Transactions on Automatic Control (October 2013 – December 2015)
- Associate Editor for IEEE Transactions on Control of Network Systems (September 2013 – December 2015)
- Editorial Board Member for SIAM Journal on Optimization (January 2013 – present)

Conference Program Committees

- Member of the technical program committee for IEEE CAMSAP 2015, the 6th IEEE International Workshop on Computational Advances in Multi-Sensor Adaptive Processing (CAMSAP), Cancun, Mexico, December 13-16, 2015
- Member of the International Program Committee of NecSys'15, the 5th IFAC Workshop on Distributed Estimation and Control in Networked Systems, University of Pennsylvania, Philadelphia, September 10-11, 2015, web: http://necsys2015.seas.upenn.edu/c
- Member of the Conference Editorial Board for the 14th European Control Conference (ECC) 2015, Johannes Kepler University, Linz, Austria, July 15–17, 2015.
- Member of the Program Committee of the 2015 American Control Conference (ACC), Chicago, IL, July 1–3, 2015.
- Organizing Committee Member of the IPAM Workshop on "Stochastic Gradient Methods," Institute for Pure and Applied Mathematics (IPAM) UCLA, February 24–28, 2014, http://www.ipam.ucla.edu/programs/sgm2014/
- Member of the Technical Program Committee for the 2nd IEEE GlobalSIP, Symposium on Network Theory, Atlanta, GA, December 3–5, 2014.

- Member of the Conference Editorial Board for the 13th European Control Conference (ECC) 2014, Strasbourg, France, June 24–27, 2014.
- Member of the Technical Program Committee for the 1st IEEE GlobalSIP, Symposium on Information Processing over Networks, a new conference series initiated by the IEEE Signal Processing Society, Austin, TX, December 3–5, 2013.
- Member of the Technical Program Committee (TPC) of the 16th International Conference on Information Fusion (FUSION 2013), Istanbul, Turkey, July 9-12, 2013.
- Member of the Technical Program Committee for Signal Processing and Information Theory track for the IEEE International Conference on Distributed Computing in Sensor Systems (IEEE DCOSS 2013), Cambridge, Massachusetts, May 20–23, 2013.
- Member of the Technical Program Committee for the Fifth IEEE International Workshop on Computational Advances in Multi-Sensor Adaptive Processing (CAMSAP) 2013, December 15–18, 2013, Saint Martin
- Member of the International Program Committee for the 4th IFAC Workshop on Distributed Estimation and Control in Networked Systems (NECSYS) 2013, Koblenz, Germany, September 25–26, 2013
- Associate Editor member of the International Program Committee for the 12th European Control Conference (ECC) 2013, Zurich, Switzerland, July 17-19, 2013, http://www.ecc13.ch/committees.html
- Member of the Best Student Paper Award Committee of the 51st Conference Decision and Control (CDC) 2012, Maui, Hawaii, December 10–13, 2012.
- Associate Editor member of the International Program Committee for the 12th European Control Conference (ECC) to be held in Zurich, Switzerland, July 17–19, 2013, http://www.ecc13.ch/committees.html
- Associate Editor member of the Technical Program Committee for the 3rd Workshop on Distributed Estimation and Control in Networked Systems (NECSYS) taking place in Santa Barbara, California, September 14–15, 2012, http://necsys2012.engr.ucsb.edu
- Member of the Technical Program Committee and Best Student Paper Award Committee of the 15th International Conference on Information Fusion (FUSION) 2012, July 9–12, 2012, Singapore
  (TPC list at http://fusion2012.org/public.asp?page=tpc.htm; best student paper committee list at http://fusion2012.org/public.asp?page=committee.htm)
- Member of the Technical program committee of NetGCoop 2012: International Conference on NETwork Games, COntrol and OPtimization, to be held in Paris on November 28–30, 2012
- Member of the Technical Program Committee for the IEEE International Conference on Distributed Computing in Sensor Networks, Hangzhou, China, May 18–20, 2012. Signal Processing and Information Theory Track, DCOSS 2012 http://www.dcoss.org/ Committee list at http://www.dcoss.org/organization.php
- Member of the Technical Program Committee of the IEEE 2011 International Conference on Distributed Computing in Sensor Systems, Signal Processing and Information Theory Track, DCOSS 2011, June 27–29, Barcelona, Spain, http://www.dcoss.org/organization.php

- Member of the International Program Committee for the 2nd IFAC Workshop on Distributed Estimation and Control in Networked Systems (NecSys'10), 13-14 September, 2010 Annecy, France, http://necsys2010.inrialpes.fr/program-committee/
- Member of the Technical Program Committee of the IEEE/ACM International Conference on Distributed Computing for Sensor Systems, Signal Processing and Information Theory Track, (DCOSS 2010) June 21–23, 2010, Santa Barbara, http://www.dcoss.org/organization.php
- Member of the Technical Program Committee of the 1st IFAC Workshop on Estimation and Control of Networked Systems (NecSys'09), 24-26 September, 2009 Venice (Italy), http://www.necsys.org/dru/?q=node/34
- Member of the Organizing Committee of the Optima'09 Conference, http://ise.illinois.edu/optima.html
- Member of the Technical Program Committee for the 12th International Conference on Information Fusion 2009, http://isif.org/fusion/conferences/fusion2009/fusion2009technical_committee.htm
- Member of the Technical Program Committee of the 1st IFAC Workshop on *Distributed Estimation and Control in Networked Systems* (NecSys'09), http://www.coe.pku.edu.cn/tpic/2008121301814324.pdf
- Member of the CSS IEEE Technical Committee on Computational Aspects of Control System Design, 2011

Organizer/Co-organizer of Conference/Workshop Sessions/Streams

- 3 sessions at the forthcoming 54th IEEE Conference on Decision and Control (CDC) 2015, Osaka, Japan, December 15–18, 2015
- Organizer of a session at the forthcoming INFORMS Annual Meeting, Philadelphia, PA, November 1-4, 2015
- **Chair** of the forthcoming 53rd Allerton Conference on Communications, Control and Computing, Allerton House, Monticello, Illinois, September 30 – October 2, 2015.
- A session at the 22nd International Symposium on Mathematical Programming (ISMP) 2015, Pittsburgh, PA, July 12–17, 2015
- **Organizer of a workshop** on "Game Theory: Models and Applications to Networked System" at the 2015 American Control Conference (ACC) July 1-3, 2015; workshop day June 30, 2015, Chicago IL.
- 2 sessions at the 53rd IEEE Conference on Decision and Control (CDC), Los Angeles, CA, December 15-17, 2014.
- A session at the annual INFORMS meeting 2014, San-Francisco, CA, November 9–12, 2014.
- **Co-Chair** of the 52nd Allerton Conference on Communication, Control and Computing, Monticello, IL, October 1–3, 2014.
- 5 sessions at the 52nd Allerton Conference on Communication, Control and Computing, Monticello, IL, October 1–3, 2014.
- A mini-symposium at the 2014 SIAM Conference on Optimization (SIOPT 2014), San Diego, CA, USA, May 19–22, 2014.

- 3 sessions at the 52nd IEEE Conference on Decision and Control (CDC), Palazzo dei Congressi, Florence, Italy, December 10–13, 2013.
- 4 sessions at the 51st IEEE Allerton Conference on Communication, Control and Computing, Monticello, IL, October 3–5, 2013.
- **Co-organizer of a Summer School** on Multi-Agent Networked Systems, University of Illinois, August 15–19, 2013.
- 3 sessions at the 51st IEEE Conference on Decision and Control (CDC) Conference, Hawaii, 2012.
- 7 sessions at 50th Allerton Conference on Communication, Control and Computing, 2012.
- A session at the 49th Allerton Conference on Communication, Control and Computing, 2011.
- 2 sessions at the 49th IEEE Conference on Decision and Control (CDC), Atlanta, Georgia, 2010.
- 2 sessions at INFORMS Annual meeting, Austin, Texas, 2010.
- A session in International Conference on Continuous Optimization (ICCOPT), Santiago, Chile, 2010.
- A session at INFORMS Annual meeting, Washington, DC, 2009.
- **Co-organizer** of the ISE OptimA Conference, March 25–27, 2009
- A session at the 47th Allerton Conference, on Communication, Control, and Computing, Monticello, Illinois, 2009.
- A session in the International Symposium of Mathematical Programming (ISMP), Chicago, Illinois, 2009.
- 3 sessions at 47th IEEE Conference on Decision and Control (CDC), Cancun, Mexico, 2008.
- 3 sessions at the 46th Allerton Conference on Communication, Control, and Computing, Monticello, Illinois, 2008.
- A session in SIAM Conference on Optimization, Boston, Massachusetts, 2008.
- Co-organizer of a stream on Nonlinear Optimization in the 22nd European Conference on Operational Research, Prague, Czech Republic, 2007.

A reviewer for Mathematical Reviews of American Mathematical Society (AMS)

Reviewer for journals including Mathematics of Operations Research, Mathematical Programming, SIAM Journal on Optimization, SIAM Journal on Control and Optimization, IEEE Transactions on Automatic Control, IEEE Transactions on Signal Processing, IEEE Transactions on Circuits and Systems, Automatica, International Journal on Robust and Nonlinear Control.

Reviewer of conference papers including Allerton Conference on Control, Communication and Computation, IEEE Control and Decision Conference (CDC), IEEE American Control Conference (ACC), International Federation of Automatic Control (IFAC) Workshop on Distributed Estimation and Control in Networked Systems.

NSF and Other Panels Served

- ARPA-E panel 2015
- Two NSF panels 2015
- NSF panel 2014
- NSF panel 2009

Other Service

An external member of the PhD thesis committee of Shahin Shahrampour, Electrical and Systems Engineering, University of Pennsylvania, June 2015 (advisor Prof. A. Jadbabaie)

The opponent of the PhD defense of Euhanna Ghadimi, Department of Automatic Control, Royal Institute of Technology (KTH), Stockholm, Sweden, April 2015 (advisor Prof. M. Johansson)

An external examiner for the PhD thesis defense of a candidate Karla Kvaternik, Electrical and Computer Engineering Department, University of Toronto, Toronto, Ontario, Canada, January 19, 2015 (advisor Prof. L. Pavel)

An invited **panel member** at the USC Workshop on Future Directions in Networks, Optimization and Controls, University of Southern California, Los Angeles, December 18, 2014, http://ee.usc.edu/future_directions/

An external examiner for the PhD thesis defense of a candidate Mojtaba Soltanalian, Department of Information Technology, Uppsala University, Uppsala, Sweden, October 2014 (advisor Prof. M. Johansson)

An External Examiner of the Ph.D. Thesis for Sadegh Bolouki Department of Electrical Engineering, Ecole Polytechnique, University of Montréal, Montréal, Canada, August 13, 2014 (advisor: Prof. R. Malhame)

An external member of the PhD thesis committee of Aswin Kannan, Industrial and Manufacturing Engineering, Pennsylvania State University, May 2014 (advisor Prof. U.V. Shanbhag)

An Expert Advisor for recruiting the Chair in Optimization at the Department of Information Technology, Uppsala University, March, 2014

An External Examiner of the Ph.D. Thesis for Konstantinos Tsianos, Department of Electrical and Computer Engineering, McGill University, Montréal, Canada, May 2013 (advisor Prof. M. Rabbat),

An Expert Advisor for recruiting the Chair in Automatic Control at the Department of Information Technology, Uppsala University, 2013

Proposal Reviewer for Army Research Office (ARO), June 2013

Member of the Evaluation Committee of the ASTRID 2012 program of the French National Research Agency, April 25, 2012

Reviewer for the Natural Sciences and Engineering Research Council of Canada (NSERC), a proposal for the Discovery Grant, January 2012

Reviewer for the Netherlands Organization for Scientific Research (NOW), a proposal for the Division Physical Sciences Complexity programme, Manager of Complexity Programme: Dr. Natasa Golo, April 16, 2010
http://www.nwo.nl/NWOhome.nsf/pages/NWOA_7E5HLT_Eng

Reviewer for a Springer Briefs publication entitled "Distributed Cooperative Flow Control in Communication Networks," November 2011

Reviewer of a new text book from Dr. Schäffler entitled "Global Optimization - A Stochastic Approach," Mathematics series at Springer, November 2011

PROFESSIONAL ASSOCIATIONS

Member of

- The Institute of Electrical and Electronics Engineers (IEEE)
- Society for Industrial and Applied Mathematics (SIAM)
- Mathematical Optimization Society (MOS) (former Mathematical Programming Society)
- The Institute for Operations Research and Management Sciences (INFORMS)