

## ALI JADBABAIE

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### Education

- California Institute of Technology, Pasadena, CA** Jan. 1998 - Nov. 2000  
Ph.D. in Control and Dynamical Systems.  
Thesis title: “Receding horizon control of nonlinear systems:  
A control Lyapunov function approach”  
Thesis Advisors: John C. Doyle & Richard M. Murray
- University of New Mexico, Albuquerque, NM** Sep. 1996 - Dec. 1997  
M.S. in Electrical Engineering.  
Thesis title: “Robust, non-fragile controller synthesis using  
model based fuzzy systems: A linear matrix inequality approach”  
Thesis Advisor: Mo Jamshidi
- Sharif University of Technology, Tehran, Iran** Sep. 1990 - Feb. 1995  
B.S. in Electrical Engineering (focus: Control Systems)

### Experience

- Massachusetts Institute of Technology, Cambridge, MA** July 2016 - present  
JR East Professor of Engineering  
Associate Director, Institute for Data, Systems and Society  
Director, Sociotechnical Systems Research Center  
Chair, Social and Engineering Systems PhD program  
Professor of Civil and Environmental Engineering
- Massachusetts Institute of Technology, Cambridge, MA** Oct. 2014 - Jan 2016  
Associate Director, Institute for Data, Systems and Society  
Visiting Professor and Interim Director  
Sociotechnical Systems Research Center
- University of Pennsylvania, Philadelphia, PA** July 2013-June 2016  
Alfred Fitler Moore Professor of Network Science  
Director, Singh Program in Networked and Social Systems (NETS)
- University of Pennsylvania, Philadelphia, PA** July 2011-June 2016  
Professor of Electrical & Systems Engineering  
Secondary Appointments in Computer & Information Sciences  
Operations, Information and Decisions (Wharton)

<b>University of Pennsylvania, Philadelphia, PA</b> Founding Co-director, Raj and Neera Singh Program in Networked and Social Systems (NETS) at Penn Engineering	<b>Sep 2009-June 2013</b>
<b>University of Pennsylvania, Philadelphia, PA</b> Skirkanich Associate Professor of Innovation in Electrical & Systems Engineering	<b>Feb 2009-June 2011</b>
<b>University of Pennsylvania, Philadelphia, PA</b> Associate Professor of Electrical and Systems Engineering	<b>July 2008 - Feb 2009</b>
<b>University of Pennsylvania, Philadelphia, PA</b> Assistant Professor of Electrical and Systems Engineering	<b>July 2002 - July 2008</b>
<b>Yale University, New Haven, CT</b> Postdoctoral associate in Electrical Engineering.	<b>July 2001 - June 2002</b>
<b>California Institute of Technology, Pasadena, CA</b> Postdoctoral scholar in Control and Dynamical Systems	<b>Dec. 2000 - June 2001</b>
<b>California Institute of Technology, Pasadena, CA</b> Graduate research assistant in Control and Dynamical Systems	<b>Jan. 1998 - Nov. 2000</b>
<b>University of New Mexico, Albuquerque, NM</b> Graduate research assistant in Electrical Engineering	<b>Aug. 1996 - Jan. 1998</b>
<b>Kara Systems Inc., Tehran, Iran</b> Control Engineer	<b>May 1995 - Jun. 1996</b>

### **Awards and Achievements**

- Winner, Best Student Paper Award,(as coauthor), IEEE Conference on Acoustics, Speech, and Signal Processing, ICASSP 2018
- Finalist, Student Best Paper Award, (as co-advisor), IEEE Conference on Decision and Control, Melbourne, Australia, December 2017
- Finalist, Student Best Paper Award, (as advisor), American Control Conference, June 2016
- Member, National Academies Intelligence Science and technology Experts group (ISTEG), March 2017
- Vannevar Bush Faculty Fellowship, Office of Secretary of Defense, 2016
- Finalist, Student Best Paper Award (as advisor), American Control Conference, 2016
- Class of 2014 IEEE Fellow, for contributions to the theory of multi-agent coordination and control, December 2013
- Finalist, Best Student Paper Award (as advisor)  
IEEE Conference on Decision and Control, Shanghai, China, December 2009

- O. Hugo Schuck Best Paper Award, American Automatic Control Council, June 2008
- Student Best Paper Award (as advisor)  
American Control Conference, New York, NY, July 2007.
- George S. Axelby Outstanding Paper Award  
IEEE Control Systems Society, December 2005.
- ONR Young Investigator Award, March 2004
- NSF Career Development Award, January 2004
- Finalist, Student Best Paper Award (as advisor)  
American Control Conference, Minneapolis, MN, June 2006
- Finalist, Student Best Paper Award(as advisor)  
IEEE Conference on Decision and Control, Bahamas, December 2004
- Outstanding Graduate Student Award, University of New Mexico, December 1997
- Graduated with High Honors, Sharif University of Technology, February 1995
- Sharif University of Technology Scholarship  
Awarded for achievement in the nation-wide university entrance exam, September 1990  
(Ranked 45th out of more than 300,000 applicants)

#### **Other Affiliations**

- Visiting Scientist, Laboratory for Information and Decision Systems, Massachusetts Institute of Technology (Jan-Dec 2014)
- Faculty member, Warren Center for Network and Data Sciences, 2013-2016
- Affiliated Faculty, Center for Technology, Innovation and Cooperation (CTIC) 2014-2016
- Faculty Member, General Robotics, Automation, Sensing and Perception Laboratory (GRASP), University of Pennsylvania. August 2002-June 2016
- Research Affiliate, Department of Electrical Engineering, Yale University. (October 2002- October 2004)

#### **Research Interests**

- Network Economics
- Computational Social Science
- Optimization for machine learning
- Network Science
- Collective behavior
- Mathematical systems theory, control theory, optimization
- Analysis, optimization, and design of networked and coupled dynamical systems
- Distributed decision making and estimation
- Applications of algebraic-topology in analysis, deployment and design of coverage algorithms for sensor networks
- Optimization-based and optimal control of nonlinear systems with application to Unmanned Aerial Vehicles (UAVs)

## Teaching Experience

- MIT, Fall 2017,18,19  
Introduction to Network Models (**new course**)
- MIT, Fall 2016, 2017  
IDS.900 Doctoral Seminar in Social and Engineering Systems (co-taught with Prof. Alberto Abadie)
- University of Pennsylvania, Spring 2009, 2010, 2011, 2012, 2013, 2016  
Modern Convex Optimization. (**New Course**)
- University of Pennsylvania, Academic Years 2005-2008  
ESE 899: Departmental Seminar.
- University of Pennsylvania, Fall 2002, 2007, 2008, 2009, 2010, 2011, 2012, 2013  
Introduction to Optimization Theory.
- University of Pennsylvania, Spring 2007  
Distributed and Networked Dynamical Systems. **New Course**
- University of Pennsylvania, Spring 2003, Fall 2005, Spring 2008, 2009, 2010, 2011  
Modern Convex Optimization.
- University of Pennsylvania, Spring 2004, 2005  
Control Systems.
- University of Pennsylvania, Fall 2003, 2004  
Linear Systems Theory
- California Institute of Technology, Pasadena, CA, winter 2001  
Introduction to control of physical systems.
- California Institute of Technology, Pasadena, CA, fall 1999  
Teaching assistant, Introduction to Modern Control.
- Workshop on nonlinear control Design, IEEE Conference on Decision and Control, CDC'99, Tampa, FL, December 1998  
Co-organized and presented lectures in the workshop on nonlinear control design.
- University of New Mexico, Albuquerque, NM, fall 1997.  
Teaching assistant, linear systems theory.

## Former PhD Students and Placement

- Vassilis Tzoumas (2011-2018), (coadvised with prof. G. Pappas), currently Research Scientists at MIT Laboratory for Information and Decision Systems
- Hoda Heidari (2011-2017), (co-advised with prof. M Kearns), currently postdoctoral scholar at Cornell Law and CS
- Rasul Tutunov (2011-2017), data scientist, Huawei R & D UK
- M Amin Rahimian, (2012-2017), IDSS postdoctoral scholar.
- Shahin Shahrampour (2009-2015), Assistant professor, Department of Systems and Industrial Engineering, Texas A & M University, College Station, TX
- Chinwendu Enyioha ( 2008-2014), Assistant Professor, Department of Electrical and Computer Engineering, University of Central Florida, Orlando, FL
- Arastoo Fazeli ( 2008-2014), data scientist at YouTube

- Michael Zargham (2008-2014), Founder, Block Science, formerly, senior Data Scientist at Cross Media Works LLC, Philadelphia, PA
- Jaelynn Oh (OPIM Dept., Wharton; 2012-2013, co-advised), Assistant Professor (starting July 2013), Operations & Information Systems Department, David Eccles School of Business, The University of Utah, Salt Lake City, UT
- Pooya Molavi (2008-2013), Assistant Professor of Managerial Economics, Kellogg School of Management, Northwestern University
- Alireza Tahbaz-Salehi (2004-2009), Winner of the 2010 Joseph and Rosaline Wolf Award for Best Dissertation, Professor of Managerial Economics, Kellogg School of Management, Northwestern University
- Nader Motee (2003-2007). Winner of the 2008 Joseph and Rosaline Wolf Award for Best Dissertation, Assistant Professor of Mechanical Engineering at Lehigh University
- Nima Moshtagh (2003-2008), Senior Research Scientist at Johns Hopkins University Applied Physics Lab, Laurel, MD
- Ali Ahmadzadeh (2003-2008), Quantitative Strategist, Constellation Energy, Baltimore, MD

#### **Former Masters Students and Placement**

- Manon Revel (2017-19) Technology and Policy Masters Program, MIT, now a PhD student in Social and Engineering systems Program at MIT IDSS.
- Saad Aleem (2013-16), Oracle
- Stamatina Lamprinakou (2013-2014), PhD student at Columbia University
- Angelos Stamatakis (2008-2009), PhD student at Johns Hopkins University
- Alex Stewart (2006-2007), Willow Garage Inc.

#### **Current PhD Students**

- Jingzhao Zhang, MIT EECS, co-advised with prof. Suvrit Sra (2017- )
- Chulhee (Charlie ) Yun, MIT EECS, co-advised with prof. Suvrit Sra (2016- )
- Amir Tohidi Kalorazi, MIT Social and Engineering Systems PhD (SES) , (2017- )
- Paolo Bertolrtti, MIT Social and Engineering Systems PhD (SES) (2017- )
- Chin-Chia Hsu, MIT Social and Engineering Systems PhD (SES) , (2016- )
- Juncal Arbelaiz Mujica, MIT Applied Math, (2018- ) (jointly advised by Professor Peko Hosoi
- Arnab Kumar Sarker , MIT Social and Engineering Systems PhD (SES), (2018- )
- William Wang, MIT EECS PhD, (2018-)
- Haochuan Li, MIT EECS PhD (2019- ) jointly advised by Professor Sasha Rakhlin
- Andreea Aleksandru (co-advised with prof. George Pappas at Penn) (2015-2020)

#### **Current Masters Students**

- Jean-Baptiste Seby, Technology and Policy Program (TPP), (2017-19)

### **Postdoctoral Scholars**

- Cesar Urtibe (2018- )
- Anuran Makur (2019- )
- Emma Tegling (2019 - )
- Rabih Salhab (2019- )
- Farzan Farnia (2019 - )
- Milad Siami (2017-19)

### **Research Scientist**

- Amir Ajorlou

### **Past Postdoctoral Scholars and Placement**

- Milad Siami (2017-19) Assistant Professor, Northeastern University, Boston, MA
- Aryan Mokhtari (2017-19) Assistant Professor, University of Texas at Austin
- Santiago Segarra (2016-18), Assistant Professor of Electrical and Computer Engineering, Rice University
- Amir Ajorlou (September 2013-2016) currently Research Scientist at Laboratory for Information and Decision Systems
- Ali Kakhbod (September 2012- February 2014), now PhD student at MIT Economics
- Serban Sabau (Jan 2012- Jan 2013 ), Assistant Professor of Electrical Engineering, Stevens Institute of Technology, Hoboken, NJ
- Victor Preciado (Fall 2009-July 2012), Assistant Professor of Electrical and Systems Engineering, University of Pennsylvania, Philadelphia, PA
- Usman Khan (Fall 2009- January 2011), Assistant Professor of Electrical Engineering at Tufts University, Boston, MA
- Nader Motee (Fall 2007-Fall 2008), Assistant Professor of Mechanical Engineering and Mechanics, Lehigh University
- Abubakr Mohammad (2006-2007), Professor, Lahore University of Management Sciences (LUMS), School of Engineering, Lahore, Pakistan

### **Visitors**

- Henri Dellavis, visiting undergraduate student from UCL, Belgium, Fall 2018
- Phillippe Koehler, visiting PhD student from University of Stuttgart, Fall 2018
- Mariano Beguerisse Diaz, visiting postdoc from Imperial College, London April-July 2013
- John Duchi, visiting graduate Student, UC Berkeley, March 2013
- Maria Carmela De Gennaro, visiting graduate student, Univ. del Sannio, Italy, April 2005 - May 2006.
- Samuel Martin, visiting graduate student, Universite de Grenoble, Summer 2011

## Publications

### Journal Articles (working papers, and papers under review)

1. V Tzoumas, L Carlone, A. Jadbabaie, and GJ Pappas , “LQG sensing and control co-design,” *IEEE Transactions on Automatic Control*, Revise and Resubmit, May 2018
2. A. Jadbabaie, A. Olshevsky, and M Siami, “ Deterministic and randomized actuator scheduling with guaranteed performance,” *IEEE Transactions on Automatic Control*, Revise and Resubmit
3. A. Ajorlou and A. Jadbabaie, “Sales-based Aggregate Rebate Design,” Under Review, *Management Science*
4. C.C. Hsu, A. Ajorlou, A. Jadbabaie, ” A Theory of misinformation spread in social networks,” working paper
5. P. Bertolotti, C Christia, A. Jadbabaie, ” Social Network Effects of Drone Strikes,” submitted for publication
6. A. Ajorlou and A. Jadbabaie, “Information aggregation in dynamic games on networks: The role of inter/intra-community ties,” *working paper*
7. A. Ajorlou, M. Dahleh, and A. Jadbabaie, “Aggregate learning in networked dynamic games,” *working paper*
8. M. A Rahimian, and A. Jadbabaie, “Statistical and Decision Theoretic Foundations for Linear Opinion Dynamics” *working paper*
9. J. Hazla, A. Jadbabaie, E. Mossel, and M. A Rahimian, “ Bayesian decision making in groups is hard ” Revise and Resubmit, *Operations Research*, July 2019
10. S. Segarra, R. Nielsen, A. Jadbabaie, “What Makes Jihadi texts popular?”, under revision

### Journal Articles (Accepted, Appeared or In Press)

1. HT Wai, S. Segarra, A. Scaglione, A, Ozdaglar, A Jadbabaie, ”Blind Community Detection from Low-rank Excitations of a Graph Filter,” *IEEE Transactions on Signal Processing*, forthcoming
2. A. Jadbabaie, A. Kakhbod, “Optimal contracting in networks,” *Journal of Economic Theory*, September 2019
3. A. Ajorlou, A. Jadbabaie, “Local Optimality of Almost Piecewise Linear Quantizers for the Witsenhausen counterexample,” Accepted for publication *IEEE Transactions on Automatic Control*, November 2019
4. M Schaub, A. Benson, G Lippner, P. Horn, and A. Jadbabaie, “Random Walks on Simplicial Complexes and Hodge Laplacians,” Accepted for publication in *SIAM Review*, June 2019
5. A. R. Benson, R. Abebe, M. Schaub, A. Jadbabaie, and J. Kleinberg, “Simplicial closure and higher-order link prediction,” *Proceedings of the National Academy of Sciences*, November 2018
6. S. Feizi, H. Quon, M. Medard, M. Kelis, and A. Jadbabaie, “Spectral alignment of networks,” , *IEEE Transactions on Network Science and Engineering*, 2019

7. R. Tutunov, H. BouAmmar, A. Jadbabaie, "A Distributed Newton Method for Large Scale Consensus Optimization," *IEEE Transactions on Automatic Control*, September 2019
8. A. Jadbabaie and A Olshevsky "Scaling Laws for Consensus Protocols Subject to Noise," *IEEE Transactions on Automatic Control*, 2019
9. A. Jadbabaie , A. Olshevsky, GJ Pappas, and V Tzoumas, " Minimal reachability is hard to approximate," *IEEE Transactions on Automatic Control*, 2019
10. P. Molavi, A. Tahbaz-Salehi, and A. Jadbabaie, "A New theory of Non-Bayesian Social Learning," *Econometrica*, Vol. 86, No. 2, pp. 445-490, March 2018
11. S. Shahrampour and A. Jadbabaie, "Distributed Online Optimization in Dynamic Environments Using Mirror Descent," *IEEE Transactions on Automatic Control* , Vol. 63, No.3, pp.714-725, March 2018
12. A. Ajorlou, A. Jadbabaie, and A. Kakhbod, "Dynamic Pricing in Social Networks: The Word of Mouth Effect" *Management Science*, 64(2):971-979, 2018.
13. M. Amin Rahimian and A. Jadbabaie, "Bayesian Learning without Recall," *IEEE Transactions for Signal and Information processing on Networks, Special Issue on social and Economic Networks*, Vol. 3, No. 3, pp. 592-606, September 2017
14. S. Sabau, C. Oara, S. Warnick, A Jadbabaie, "A Novel Description of Linear Time Invariant Networks via Structured Coprime Factorizations," Vol. 62, No.1, Jan 2017
15. A. Fazeli, A. Ajorlou, and A. Jadbabaie, "Competitive Diffusion in Social Networks: Quality or Seeding," *IEEE Transactions on Control of Network Systems*, Vol. 4, No. 3, pp. 565-575, September 2017
16. S. Shahrampour, A. Rakhlin, A. Jadbabaie, "Distributed Detection : Finite-time Analysis and Impact of Network Topology," *IEEE Transactions on Automatic Control*, Vol. 61, No. 11, November 2016
17. V. Tzoumas, MA Rahimian, G. J. Pappas, A. Jadbabaie, "Minimal Actuator Placement with Bounds on Control Effort," *IEEE Transactions on Control of Network Systems*, March 2016, pp. 66-78.
18. P. Molavi, C. Eksin, A. Ribeiro, and A. Jadbabaie," Learning to coordinate," *Operations Research, Operations Research*, February 2016
19. U. Khan and A. Jadbabaie, "Collaborative scalar-gain estimation with limited sensing information," *Automatica*, Vol. 50, No. 7, pp. 1909-1914, July 2014.
20. M. Zargham, A. Ribeiro, A. Ozdaglar, and A. Jadbabaie, " Accelerated Dual Descent for Network Flow Optimization," *IEEE transactions on Automatic Control*, Vol. 59, No. 4, pp. 905-920, April 2014
21. VM Preciado, M Zargham, C Enyioha, GJ Pappas, and A. Jadbabaie, "Optimal Resource Allocation for Network Protection Against Spreading Processes," *IEEE Transactions on Control of Network Systems*, Vol. 1, No. 1, pp. 99-108, 2014.
22. S Martin, A Girard, A. Fazeli, and A. Jadbabaie , "Multi-agent flocking under general communication rule, *IEEE Transactions on Control of Network Systems*, Vol. 1, No. 2, 2014
23. C. Eksin, P. Molavi, A. Ribeiro, and A. Jadbabaie, "Bayesian Quadratic Network Game Filters," *IEEE Transactions on Signal Processing*, Vol. 62, No. 9, pp. 2250-2264, May 2014.



24. C. Eksin, P. Molavi, A. Ribeiro, and A. Jadbabaie, "Learning in Network Games with Incomplete Information," *IEEE Signal Processing Magazine*, Vol. 30, No. 3, pp. 30–42, April 2013
25. V. Preciado, A. Jadbabaie, and G. C. Verghese, "Structural analysis of Laplacian spectral properties with application to electric transmission networks," *IEEE Transactions on Automatic Control*, Vol. 58, No. 9, pp. 2338-2343, September 2013
26. V. Preciado and A. Jadbabaie, "Moment-based analysis of spreading processes from network structural information," *IEEE Transactions on Networking*, Vol. 21, No. 2, pp. 373-382, April 2013
27. E. Wei, A. Ozdaglar, and A. Jadbabaie, "A distributed Newton Method for network utility maximization, Part I" *IEEE Transactions on Automatic Control*, Vol. 58, No. 9, pp. 2162-2176, September 2013
28. E. Wei, A. Ozdaglar, and A. Jadbabaie, "A distributed Newton Method for network utility maximization, Part II" *IEEE Transactions on Automatic Control*, Vol. 58, No. 9, pp. 2176-2189, September 2013
29. P. Molavi, A. Tahbaz Salehi, and A. Jadbabaie, "Reaching Consensus with Increasing Information," *IEEE Journal of Selected Topics in Signal Processing*, special issue on adaptation and learning over complex networks, Vol. 7, No. 2, pp. 358-370, January 2013
30. A. Jadbabaie, P. Molavi, A. Sandroni, and A. Tahbaz-Salehi, "Non Bayesian Social learning," *Games and Economic Behavior* 76(2012) pp. 210-225, September 2012
31. A. Papachristodoulou and A. Jadbabaie, "Delay Robustness of Nonlinear Internet Congestion Control Schemes" *IEEE Transactions on Automatic Control*, Vol. 55, No. 6, June 2010, pp. 1421-1428
32. A. Papachristodoulou and A. Jadbabaie, and U. Munz, "Effects of Delay in Multi-Agent Consensus and Oscillator Synchronization," *IEEE Transactions on Automatic Control*, Vol. 55, No. 6, June 2010, pp. 1471-1477
33. A. Tahbaz-Salehi, and A. Jadbabaie, "Distributed coverage verification in sensor networks without location information," *IEEE Transactions on Automatic Control*, Forthcoming, Vol 55., No. 8, August 2010
34. A. Tahbaz-Salehi, and A. Jadbabaie, "Consensus in ergodic-stationary graph processes," *IEEE Transactions on Automatic Control*, Vol. 55, No. 1, January 2010, pp. 225 - 230
35. M. Zavlanos, H. Tanner, A. Jadbabaie, and G. J. Pappas, "Hybrid control for connectivity-preserving flocking," *IEEE Transactions on Automatic Control*, Vol. 54, No. 12, pp. 2869–2876, December 2009
36. N. Motee and A. Jadbabaie, "Distributed multiparametric quadratic programming," *IEEE Transactions on Automatic Control*, Vol. 54, No. 10, pp. 2279-2289, October 2009
37. N. Moshtagh, N. Michael, A. Jadbabaie, and K. Daniilidis, "Vision-Based, distributed control laws for motion coordination of nonholonomic robots" *IEEE Transactions on Robotics*, Vol. 25, No. 4, pp. 851-860, August 2009
38. N. Motee and A. Jadbabaie, "Optimal control of spatially distributed systems," *IEEE Transactions on Automatic Control*, Vol. 53, No. 7, pp. 1616-1629, August 2008
39. P. Parrilo and A. Jadbabaie, "Approximation of the joint spectral radius of a set of matrices using sum of squares," *Linear Algebra and its Applications* Vol. 428, No. 10, pp. 2385-2402, May 2008.

40. A. Tahbaz Salehi and A. Jadbabaie, "On consensus in random networks," *IEEE Transactions on Automatic Control*, Vol. 53, No.3, pp. 791–796, April 2008.
41. S.G. Loizou and A. Jadbabaie, "Density functions for navigation function based systems," Accepted for publication in *IEEE Transactions on Automatic Control*, Vol. 53, No. 2, pp. 612–617, March 2008.
42. N. Moshtagh and A. Jadbabaie, "Geodesic control laws for flocking of multiagent systems," *IEEE Transactions on Automatic Control*, Vol. 52, No. 4, pp. 681–686, April 2007.
43. S. Prajna, A. Jadbabaie, and G. J. Pappas, "A framework for worst case and stochastic safety verification using barrier certificates," *IEEE Transactions on Automatic Control*, Vol. 52, No. 8, pp. 1415-1429, August 2007.
44. H. Tanner, A. Jadbabaie, and G. J. Pappas, "Flocking in fixed and switching networks" *IEEE Transactions on Automatic Control*, Vol. 52, No. 5, pp. 863-868, May 2007. **(Highest cited paper in IEEE TAC from 2007-2012)**
45. J. S. Kim, T-W. Yoon, A. Jadbabaie, and C. De Persis , "Input-to-State Stable Finite Horizon MPC for Neutrally Stable Linear Discrete-Time Systems with Input Constraints", *Systems and Control Letters*, Vol. 55, 2006, pp. 293-303.
46. A. Jadbabaie and J. Hauser, "On the stability of receding horizon control with a general terminal cost," *IEEE Transactions on Automatic Control*, Vol. 50, No.5, May 2005, pp. 674-678.
47. A. Jadbabaie, J. Lin, and A. S. Morse, "Coordination of groups of mobile autonomous agents using nearest neighbor rules," *IEEE Transactions on Automatic Control*, Vol. 48, No. 6, June 2003, pp. 988-1001. **Winner, IEEE CSS George S. Axelby Award**
48. A. Jadbabaie and J. Hauser, "Control of a tethered flying wing: a receding horizon-LPV approach," *International Journal of Robust and Nonlinear Control*, Vol. 12, No. 9, July 2002, pp. 869-896.
49. A. Jadbabaie, J. Yu, and J. Hauser, "Unconstrained receding horizon control of nonlinear systems," *IEEE Transactions on Automatic Control*, Vol. 46, No. 5, pages 736-743, May 2001.
50. J. Yu, A. Jadbabaie, J. Primbs, and Y. Huang, "Comparison of nonlinear control designs on a ducted fan model," *Automatica*, Vol. 37, No. 12, pages 1971-1978, December 2001.
51. D. Famularo, C. Abdallah, P. Dorato, W. Haddad, and A. Jadbabaie, "robust, non-fragile LQ controllers: the static state feedback case," *International Journal of Control*, Vol. 73, No. 2, pages 159-165, January 2000.
52. A. Jadbabaie and S. Emami, "Fuzzy predictive control of a heat exchanger with variable dead-time," *International Journal of Environmentally Conscious Design and Manufacturing*, Vol. 2, No. 4, pages 67-72, February 1995.

## Refereed Book Chapters

1. N. Moshtagh, N. Michael, A. Jadbabaie, and K. Daniilidis, "Bearing-only control laws for balanced circular formations of ground robots, " in *Proceedings of Robotics: Science and Systems IV*, MIT Press, June 2008.

2. A. Ahmadzadeh, J. Keller, A. Jadbabaie, G. J. Pappas, and V. Kumar, "An optimization-based approach to time-critical cooperative surveillance and coverage with UAVs" in *Experimental Robotics*, O. Khatib, V. Kumar, and D. Rus (Eds.), Springer track in advanced robotics, Volume 39, pp. 491–500, 2008.
3. A. Muhammad and A. Jadbabaie, "Dynamic coverage verification in Mobile Sensor Networks Via Switched Higher Order Laplacians," in *Proceedings of Robotics: Science and Systems*, , MIT Press, Cambridge, MA 2007.
4. P.A. Parrilo and A. Jadbabaie, "Approximation of the joint spectral radius of a set of matrices using sum of squares" in *Hybrid Systems: Computation and Control*, Alberto Bemporad, Antonio Bicchi and Giorgio Buttazzo , editors, Springer Lecture Notes in Computer Science, 2007.
5. A. Muhammad and A. Jadbabaie, "Asymptotic stability of switched higher order Laplacians implies Dynamic Coverage" in *Hybrid Systems: Computation and Control*, Alberto Bemporad, Antonio Bicchi and Giorgio Buttazzo , editors, Springer Lecture Notes in Computer Science, 2007.
6. N. Moshtagh, **A. Jadbabaie**, and K. Daniilidis, "Vision-based distributed coordination of multi-agent systems," in *Robotics: Science and Systems*, pp. 41-48, MIT Press, Cambridge, MA 2005.
7. S. Prajna and A. Jadbabaie, "Safety verification of hybrid systems using barrier certificates," in *Hybrid Systems: Computation and Control*, R. Alur and G. Pappas, editors, Springer Lecture Notes in Computer Science, vol. 2993, pp. 477-492, 2004.
8. H. Tanner, A. Jadbabaie, and G. Pappas, "Coordination of Flocks of Autonomous Mobile Agents," *Proceedings of the Block Island Workshop on Cooperative Control*, V. Kumar, N.E Leonard, and A. S. Morse, editors, *Cooperative Control*, Springer Lecture notes in Control and Information Science, vol. 309, pages, 229-239, 2004.
9. R. M. Murray, J. Hauser, A. Jadbabaie, M. Milam, B. Dunbar, and R. Franz, "Online Control Customization via Optimization-based Control," in T. Samad and G. Balas, editors, *Software Enabled Control: Information technology for dynamical systems*, Wiley-IEEE Press, 2003.
10. A. Jadbabaie, C. Abdallah, M. Jamshidi, and A. Titli, "Observer-based controller synthesis for model-based fuzzy systems via linear matrix inequalities," in S. Farinwata, D. Filev, and R. Langari, editors, *Fuzzy Control: Synthesis and Analysis*, pp. 239-252. Wiley, 2000.

### Book Review and Magazine Articles

- S. Segarra, A. jadbabaie, R. Nielsen, "Baghdadi's martyrdom bump," Argument article, *Foreign Policy*, October 29, 2019
- A. Jadbabaie, "Flocking in Networked Systems," in *Encyclopedia of Systems and Control*, Springer, London, 2014
- A. Jadbabaie, "Technical Perspective: Natural Algorithms in a Networked World," *Communications of the ACM*, December 2012.
- A. Jadbabaie, "Convex Optimization by Stephen P. Boyd and Lieven Vandenberghe," *IEEE Control Systems Magazine*, December 2005.
- A. Jadbabaie, "Flocking and motion Coordination," *Springer Encyclopedia of Control*

## Refereed Conference Papers

1. J. Zhang, T. He, S. Sra, and A. Jadbabaie, "Why Gradient Clipping Accelerates Training: A Theoretical Justification for Adaptivity," to appear in *Proceedings of International Conference on Learning Representations (ICLR)*, 2020 (**Oral Presentation**)
2. C. Yun, S. Sra, A. Jadbabaie, Small ReLU networks are powerful memorizers: a tight analysis of memorization capacity, *Proceedings of NeurIPS 2019*, Vancouver, Canada, December 2019 (**oral Spotlight**)
3. C. Yun, S. Sra, A. Jadbabaie, Are deep ResNets provably better than linear predictors? *Proceedings of NeurIPS 2019*, Vancouver, Canada, December 2019
4. C. Yun, S. Sra, A. Jadbabaie, Small nonlinearities in activation functions create bad local minima in neural networks," *Proceedings of International Conference on Learning Representations (ICLR)*, 2019
5. C. Yun, S. Sra, A. Jadbabaie, Efficiently testing local optimality and escaping saddles for ReLU networks," *Proceedings of International Conference on Learning Representations (ICLR)*, 2019
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145. H. Tanner, A. Jadbabaie, and G. Pappas, "Coordination of multiple autonomous vehicles," *proceedings of Mediterranean Control Conference*, Rhodes, Greece, June 2003.
146. A. Jadbabaie, "Distributed coordination strategies for mobile autonomous agents," *proceedings of Mediterranean Control Conference*, Rhodes, Greece, June 2003.
147. A. Jadbabaie, J. Lin, and A. S. Morse, "Coordination of groups of mobile autonomous agents using nearest neighbor rules," *Proceedings of IEEE Conference on Decision and Control*, Las Vegas, NV, December 2002.
148. A. Jadbabaie, C. DePersis, and T. W. Yun, "A globally stabilizing receding horizon controller for input constrained, neutrally stable linear systems," *proceedings of IEEE Conference on Decision and Control*, Las Vegas, NV, December 2002.
149. A. Jadbabaie and A. S. Morse, "On the input-to-state stability property for receding horizon control of constrained linear systems," *proceedings of IFAC World Congress*, Barcelona, Spain, July 2002.
150. A. Jadbabaie and J. Hauser, "On the stability of unconstrained receding horizon control with a general terminal cost," *proceedings of IEEE Conference on Decision and Control CDC 2001*, Orlando, FL, December 2001.

151. A. Jadbabaie, J. Primbs and J. Hauser, "Receding horizon control with no terminal cost," *proceedings of the American Control Conference ACC 2001*, Arlington, VA, June 2001.
152. A. Jadbabaie and J. Hauser, "Control of the Caltech ducted fan in forward flight: A receding horizon-LPV approach," *proceedings of the American Control Conference, ACC 2001*, Arlington, VA, June 2001.
153. A. Jadbabaie and J. Hauser, "Relaxing the optimality condition in receding horizon control," in *proceedings of IEEE Conference on Decision and Control, CDC 2000*, Sydney, Australia, December 2000.
154. J. Hauser and A. Jadbabaie, "Aggressive maneuvering of a thrust vectored flying wing: A receding horizon approach," *proceedings of IEEE Conference on Decision and Control, CDC 2000*, Sydney, Australia, December 2000.
155. A. Jadbabaie, J. Yu, and J. Hauser, "Unconstrained receding horizon control of nonlinear systems," *proceedings of IEEE Conference on Decision and Control, CDC '99*, Phoenix, Arizona, December 1999.
156. A. Jadbabaie, J. Yu, and J. Hauser, "Receding horizon control of the Caltech ducted fan: A control Lyapunov function approach," *proceedings of IEEE CCA '99*, Big Island, HI, August 1999.
157. A. Jadbabaie, "A reduction in conservatism in stability and  $L_2$  gain analysis of Takagi-Sugeno fuzzy systems," *proceedings of the IFAC World congress*, Beijing, China, July 1999.
158. J. Yu, A. Jadbabaie, J. Primbs and Y. Huang "Comparison of nonlinear control designs for a ducted fan model," *proceedings of the IFAC World congress*, Beijing, China, July 1999.
159. Y. Huang and A. Jadbabaie, "Nonlinear  $H_\infty$  control: an enhanced quasi-LPV approach," *proceedings of the IFAC World congress*, Beijing, China, July 1999.
160. A. Jadbabaie, J. Yu and J. Hauser, "Stabilizing receding horizon control of nonlinear systems: A control Lyapunov function approach," *proceedings of the American Control Conference, ACC'99*, San Diego, CA, June 1999.
161. A. Jadbabaie, C. Abdallah, and P. Dorato, "Guaranteed-cost control of polynomial nonlinear systems," *proceedings of IEEE Conference on Decision and Control, CDC '98*, Tampa, FL, December 1998.
162. A. Jadbabaie, C. Abdallah, P. Dorato and M. Jamshidi "Guaranteed-cost control of the nonlinear benchmark problem," *proceedings of IEEE Conference on Control Applications, CCA '98*, Trieste, Italy, September 1998.
163. A. Jadbabaie, C. Abdallah, and P. Dorato, "Robust, non-fragile and optimal controller synthesis via LMIs," *proceedings of the American Control Conference, ACC '98*, Philadelphia, PA, June 1998.
164. A. Jadbabaie, M. Jamshidi, and A. Titli, "Guaranteed-cost design of Takagi-Sugeno fuzzy controllers via LMIs," in *proceedings of IEEE International Conference on Fuzzy Systems, Fuzz IEEE'98*, Anchorage, Alaska, May 1998.
165. A. Jadbabaie, A. Titli, and M. Jamshidi, "Fuzzy observer-based control of nonlinear systems," *proceedings of IEEE Conference on Decision and Control, CDC '97*, San Diego, CA, December 1997.

166. A. Jadbabaie, A. Titli, and M. Jamshidi, "A Separation Property of Observer/Controller for Continuous-Time Fuzzy Systems," *Proceedings of 35th Allerton National Conference on Communications, Control and Computing*, Monticello, IL, October 1997.

### **Plenary Presentations and Distinguished Seminars**

- Invited Speaker, Workshop on Social and Economic Networks: Politecnico Torino, Turin, November 2019
- Invited Speaker, Workshop on Deliberation, Belief Aggregation, and Epistemic Democracy, Neuville-sur-Oise, France, June 2019,
- Distinguished Seminar Speaker, Delft University, Netherlands, March 2019
- Distinguished Seminar Speaker, University of Texas, Arlington, 2019
- Distinguished Speaker, Haliburton LIFE Conference, August 2018
- Distinguished Seminar, CornellTech, October 2018
- Distinguished Seminar, University of Delaware, November 2018
- Distinguished Seminar, Department of Industrial Engineering, Purdue University
- Plenary Speaker, Indian Control Conference, January 2018
- Distinguished Seminar, Northwestern University, May 2016
- Plenary Speaker, GE Annual Symposium, GE Research, Schenectady, NY, September 2015
- Plenary speaker, IEEE System of Systems Conference 2015, San Antonio TX, May 2015
- Keynote Speaker, Workshop on Paradigms for Control in Social Systems, ICCS 2015, Iceland
- Keynote Speaker, FMOC MObiHOC Workshop, Philadelphia, August 2014
- Keynote Speaker, LIDS Student Conference, MIT, January 2014
- Keynote speaker, Southern California Network Economics and Game theory Conference, 2013
- Plenary speaker, Network Mapping and Measurement Conference (NMMC 2013), Sundance, UT, May 2013
- SemiPlenary Speaker at the 2011 Chinese Control Conference (CCDC 2011)
- Distinguished Colloquium Speaker, North Carolina State University, October 2010
- semi-plenary speaker at First IFAC Workshop on Networked Control Systems, Venice, Italy, September 2009
- Semi-plenary speaker at the IEEE Conference on Decision and Control, Shanghai, China, December 2009
- Plenary Speaker, Georgia Tech Student Conference, April 2010
- Plenary Speaker, Belgian Bi-annual Conference on Dynamics, Control and Optimization, Ghent, Belgium

### **Invited Seminars and Presentations**

- Distinguished Seminar, Purdue University, March 2018
- Seminar, University of Southern California, March 2018
- Panelist, Data West Conference, UCSD, December 2016
- Moderator, IDSS Launch Workshop, Panel on Social Networks, September 2016
- Johns Hopkins Carey School of Business, September 2016
- Northwestern University Distinguished Seminar, IE Department, May 2016
- Stanford Research in Algorithms and Incentives on Networks Seminar, April 2016
- Distinguished Seminar, IEEE Philadelphia Section, March 2016
- Tsukuba University Workshop on Management Science and Control
- Applied Mathematics Seminar, Princeton University, November 2015
- Controls Seminar, Coordinated Science Lab, UIUC, October 2015
- IMA Annual Program Year Workshop on Analysis and Control of Network Dynamics, IMA, University of Minnesota
- Yale Institute for Network Science Distinguished Seminar, January 2015
- Control, Instrumentation, and Robotics Seminar, Department of Mechanical Engineering, MIT, September 2015
- Boston University, Center for Information and Systems Engineering, May 2015
- Electrical Engineering Seminar, Harvard University, November 2014
- Microeconomics Workshop, Department of Economics, Cambridge University, October 2014
- Boston University Symposium on Network Control Systems, October 2014
- INET Seminar, Cambridge University, Department of Economics, October 2014
- Microeconomics Seminar, Cambridge University, October 2014
- ECE Seminar, Tufts University, September 2014
- Automatic Control Department Seminar, KTH, Stockholm, Sweden, May 2014
- Seminar, Department of Automatic Control, Lund University, Sweden, May 2014
- Seminar, Institute of Advanced Studies IMT, Lucca, Italy
- IMA Workshop on Topological Systems: Communication, Sensing, and Actuation, March 2014
- OR and Financial Engineering Department, Princeton University, October 2013
- UIUC Summer school in Multiagent Systems, August 2013
- SILO Workshop, Madison, Wisconsin, June 2013
- SIAM Conference on Control, July 2013
- Penn MicroEconomics Theory Seminar, September 2012
- MIT symposium on Emerging Topics in Interconnected Systems, June 2012
- Invited Seminar, United Technologies Research Center, October 2011
- ECE Seminar, University of Maryland, September 2011
- ECE Seminar, Cornell University, March 2011



- University of Maryland Baltimore County Math Seminar, March 2011
- Invited Speaker and Symposium Co-organizer, Foundations of Computational Math, FOCM 2011
- Workshop on Topology: Identifying order in Complex Systems. Penn, IAS
- UT Austin EE Seminar, September 2010
- Invited Speaker, WIOPT 2010, Avignon, France, June 2010
- Lund LCCC Workshop on Distributed Estimation, Feb 2010
- Harvard-Air Force Workshop on Complex networks, November 2009
- Princeton Workshop on Natural Algorithms, November 2009
- Princeton CS Theory Seminar, November 2009
- IEEE CDC Workshop on Network Science December 2009
- Concordia University ECE Seminar, October 2009
- NSF-Yale Workshop on Cooperative Control and Estimation, Yale University, November 2008
- IPAM Workshop on Multi-resolution Analysis of Networks, Institute for Pure and Applied Mathematics, UCLA, November 2008
- NSF workshop on Network Science, Marina Del Ray, CA, July 2008
- Caltech CDS Seminar, May 2008
- ICRA workshop on cooperative control of multiple heterogeneous agents, May 2008
- SIAM Conference on Optimization, invited session on distributed optimization, May 2008
- UCSB Center for Control Engineering and Computation, May 2008
- IPSN special workshop on Signal and Information processing, April 2008
- EU STARFLAG Workshop on patterns of animal group movements, Budapest, Hungary, November 2007.
- Center for Information and Systems Engineering, Boston University, September 2007.
- MIT LIDS Seminar, September 2007.
- Engineering Seminar, Oxford University, June 2007.
- Institute for Mathematical Sciences Seminar, Imperial College, London, June 2007.
- Workshop on Modeling and Control of Physical Networks, University of Pisa, Italy, April 2007.
- Decision and Control Seminar, University of Illinois at Urbana Champaign, March 2007.
- Connections II: workshop on fundamentals of network science, California Institute of Technology, August 2006.
- Workshop on Topology and Robotics, ETH Zurich, July 2006.
- Honeywell workshop on Coordination and Control of UAVs for Urban Operations, ACC 2006, Minneapolis, MN, June 2006.
- University of Maryland, College Park, Center for Satellite and Hybrid Communication Networks, February 2006.

- Princeton University, Mechanical and Aerospace Engineering Seminar, July 2005.
- Hamilton Institute, National University of Ireland, Maynooth, June 2005.
- Information Technology Department, National University of Ireland, Galway, June 2005.
- Yale workshop on Systems Science, May 2005.
- SIAM working group on dynamical systems, mini-symposium on distributed motion coordination, Snow Bird, Utah, May 2005.
- SIAM working Group on Dynamical Systems, Mini-symposium on Synchronization in Complex Networks, Snow Bird, UT, May 2005.
- University of Washington, Robotics, Control and Mechatronics Colloquium, May 2005.
- Honeywell workshop on UAV autonomy and multi-vehicle coordinated operations, IEEE CDC 2004, Bahamas.
- GRASP Seminar, November 2004.
- Massachusetts Institute of Technology, LIDS Colloquium, November 2004.
- Stanford University, Aeronautics and Astronautics Seminar, October 2004.
- University of Maryland Baltimore County, Differential Equations Seminar, October 2004
- Yale University, Electrical Engineering Seminar, October 2004.
- Lockheed Martin, Advanced Technology Labs, July 2004.
- Cambridge University, Control Seminar, June 2003.
- Imperial College London, Bioengineering seminar, June 2003.
- ONR Workshop on Adaptive Intelligent Networks and Systems (AINS), Menlo Park, CA, June 2003.
- Block Island Workshop on Cooperative Control, Block Island, RI, June 2003.
- Drexel University, Electrical Engineering Seminar, April 2003.
- Harvard University, Electrical Engineering Seminar, February 2003.
- Massachusetts Institute of Technology, Aeronautics and Astronautics Seminar, November 2002.
- University of Pennsylvania, GRASP Seminar, September 2002.
- California Institute of Technology, Control and Dynamical Systems Seminar, April 2002.
- University of Illinois, Urbana Champagne, Aeronautics Seminar, March 2002.
- Yale University, Electrical Engineering Seminar, March 2002.
- United Technologies Research Center, Systems and Controls Seminar, March 2001.

### **Professional Activities**

- Founding Co-organizer, Learning for Dynamics and Control Conference (L4DC), May 2019
- General Chair, IFAC Workshop on Networked Control systems, September 2016
- Inaugural Editor-in-Chief, IEEE Transactions on Network Science and Engineering 2014-2017
- Associate Editor for *Operations Research*

- Associate Editor for the new IEEE Transactions on Control of Network Systems
- Co-organizer of the 2007 and 2008 Northeast Control Workshop for postdoctoral scholars and PhD students, March 2007, April 2008.
- Co-organizer of the CDS@20 Workshop, August 2014
- Co-organizer of workshop on *Swarming in Natural and Engineered Systems*, Napa valley, CA, August 2005, and Philadelphia, PA, March 2007.
- Member of the Conference Editorial Board, IEEE CDC 2003
- Member of Programing Committee, ACC 2007, ACC 2008, and ACC 2009, CDC 2008, CDC 2009 Conferences.
- Reviewer for various journals including Nature, Physical Review Letters, *IEEE Transactions on Automatic Control*, *Automatica*, *International Journal of Robust and Nonlinear Control*, *International Journal of Control*, *IEEE Transactions on Fuzzy Systems*, *IEEE Transactions on Mechatronics*, *IEEE Transactions on Circuits and Systems*, *SIAM Journal on Control and Optimization*, *Systems Control Letters*.
- Reviewer for IEEE Conference on Decision and Control, IEEE Conference on Control Applications, IFAC Congress, American Control Conference.
- Chaired and co-chaired sessions in IEEE CDC, ACC, and other IEEE conferences.
- Fellow of IEEE
- Organizer and chair of an invited session on coordinated motion control of mobile autonomous agents at IEEE Conference on Decision and Control, 2002.

## University Activities

- Chair, IDSS Search committee 2017- present
- Chair, Social and Engineering Systems PhD Program
- Member undergraduate Education Committee, CEE, MIT 2016- present
- Member, CEE Faculty Search Committee, MIT 2016 - present
- Chair, SoE Committee on NAE Grand Scholars Program
- Member, IDSS Launch planning committee, MIT
- Member, committee for the new PhD program in Social and Engineering Systems, MIT
- Chair, search committee for selection of chair of the Computer and Information Science Department (March-April 2013)
- Director, Singh Program in Networked and Social Systems Engineering (2013- )
- Chair, Pender Award Committee
- Founding co-director, Singh Program in Networked and Social Systems Engineering 2009-2013
- Chair, ESE Faculty Search Committee in Networked and Social Systems Engineering
- Chair, ESE faculty Search Committee in Information and Decision Systems
- Member, SEAS faculty Council, 2009-2012
- Member, SEAS academic performance committee (2009-present)
- Member, ESE Department Chair search committee, 2010

- Faculty search committee chair for Market and Social Systems Engineering 2009-2010
- Member, Systems Engineering curriculum review Committee 2006-2007
- Member, Electrical and Systems Engineering departmental strategic plan committee 2003-2004
- Member, Electrical and Systems Engineering undergraduate affairs committee 2005

## Advising

- PhD proposal/Defense Committee member for Rahul Rao (MEAM October 2004), John Spletzer (CIS July 2003), Yi-Rong Yi (August 2007), Michael Brautbar (March 2013), Ani Hsieh (August 2007).
- PhD Dissertation Proposal Defense committee member for Rahul Rao (MEAM June 2004), Hui Zhao (MEAM May 2004), Ani Hsieh (MEAM 2003), Nathan Michael (MEAM, 2005), Yi Rong Zhu (ESE), Ji Hun Ham (ESE), Michael Zavlanos (ESE), Ethan Stump (MEAM), Timouthee Cour (CIS), Spring Berman (MEAM), Jeanie T Moulton (ESE), Jinsong Tan, (CIS) Daniel Mellinger (MEAM), Alex Kulecza (CIS), Subrajit Battacharya (MEAM), Benjamin Gojman (CIS), Michael Brautbar (CIS), Jennifer Gillenwater (CIS), Konstantinos Gatsis (ESE), Mahyar Fazlyab (ESE), Aryan Mokhtari (ESE),
- Advisee of more than 20 undergraduate students in Electrical and Systems Engineering at Penn and 5 students at MIT
- Senior design supervisor for Melissa Rudofsky (ESE, 2012), Robert Feigenberg, Carolina Lee, Daniela Savoia, Ella Kim, (ESE, 2010), David Wang (ESE, 2009), Ai Jing, (CSE 2005).
- Senior capstone project supervisor for Christine Hommes (ESE, 2006), Ishan Nerurkar (NETS)

## Research Funding

- *A New Paradigm for Analysis of Complex, Social and Engineering systems*, 2016-2021, Vannevar Bush (formerly NSSEFF) Fellowship, Office of Secretary of Defense, 2016-2021, \$3,000,000. PI: A. Jadbabaie
- *Foundations of Decision making under computational and behavioral constraints*, 2018-2023, ARO MURI, \$6,250,000. PI. A. Jadbabaie. CoPI: E. Mossel, J. Tenenbaum, (MIT). A. Benson, J. Kleinberg, J. Halpern, Cornell.
- *Higher Order Topology and Geometry of Complex Networks*, 2018-21, ARO, \$1,500,000. PI. A, jadbabaie. CoPI: A. Benson, J. Kleinberg
- *Optimization, federated learning, and high dimensional statistics for large-scale machine learning*, ONR, \$1,000,000. PI. A: Jadbabaie. CoPI: A. Rakhlin. (Recommended for funding, 2020)
- *Adaptive, Robust, And Collaborative Optimization*, MIT-IBM AI Initiative, \$ 150,000. coPI: Asu Ozdaglar

## Completed Grants

- *MURI Addendum: Topics in Dynamic Games over Networks*, Army Research Office, 2018-19, \$500,000
- *Foundations of Scalable Nonconvex Optimization*, DARPA DSO's Lagrange Program, \$750,000. PI: A. Jadbabaie CoPIs: Suvrit Sra, Stefanie Jegelka, Sasha Rakhlin
- *Foundations of Scalable Statistical Learning*, DARPA DSO : Fundamental Limits on learning (FunLoL Program, \$999,739. PI: A. Jadbabaie. CoPIs: Asu Ozdaglar, Suvrit Sra, Philippe Rigollet, Caroline Uhler, Devavrat Shah, Guy Bresler, Sasha Rakhlin.
- Workshop for the Launch of the Institute for Data, Systems, and Society, Army Research Office, PI: A. Jadbabaie \$ 15,000. September 2016
- Workshop for the Launch of the Institute for Data, Systems, and Society, NSF, PI: A. Jadbabaie \$ 45,000, September 2016.
- *New Paradigms for Scalable, Online, Distributed Optimization*, 2012-2018, ONR Basic Research Challenge Award, \$1,500,000, PI: Ali Jadbabaie. CoPIs : Alejandro Ribeiro (Penn), Sasha Rakhlin (Penn), Asu Ozdaglar (MIT)
- *Evolution of Cultural Norms and Dynamics of Sociopolitical Change*, 2012-2017, ARO MURI Award \$6,250,000, PI: Ali Jadbabaie. Other Institutions: MIT, Cornell, Stanford, GeorgiaTech
- *Geometry and Topology of Complex Networks*, AFOSR Complex Networks Program, 2013-2018, \$1,950,000. PI: A. Jadbabaie. CoPIs: Fan Chung Graham (UCSD), Shing-Tung Yau (Harvard)
- *Topological And Geometric Tools For Analysis of Complex Networks*, AFOSR Complex Networks Program, 2009-2013, \$1,800,000 PI: A. Jadbabaie. CoPIs: Fan Chung Graham (UCSD), Shing-Tung Yau (Harvard)
- AM<sup>3</sup>: *Autonomous Multifunctional, Mobile Micro Systems*, Army Research Laboratory, Collaborative Technology Alliance on Micro Autonomous Systems Technology (MAST), 2008-2018, \$22,000,000. Lead by Penn, including a total of 17 PIs. Penn PIs: V. Kumar, A. Jadbabaie, K. Daniilidis, G.J. Pappas, D. Koditschek, and D. D. Lee
- *Control Science for Next Generation Sensing*, AFOSR MURI Award, 2010-2015, \$7,500,000. PI: D. E. Koditschek. Penn CoPIs A. Jadbabaie, V. Kumar, A. Ribeiro. Other institutions: Berkeley, Minnesota.
- HUNT: *Heterogeneous, Unmanned Networked Teams*, ONR MURI Award, 2008-2013. Approximately \$7,500,000 (Penn Share \$3,400,000). Penn PIs: G.J. Pappas, A. Jadbabaie and V. Kumar. Other institutions: Berkeley, GeorgiaTech, MIT
- *Next Generation Network Science*, ONR MURI Award, 2008–2013, Approximately \$7,500,000 (Penn share 2,700,000). PIs: A. Jadbabaie and M. Kearns Other institutions: Caltech, UC San Diego, UC Santa Barbara, Naval Postgraduate School
- *Topological Methods for Distributed Coverage Problems in Mobile Sensing Networks*, NSF Power, Control, and Adaptive Networks (PCAN) program. PI: A. Jadbabaie, \$ 270,000. September 2007-September 2010
- *Sensor Topology and Minimalist Planning (SToMP), Phase I and Phase II*. DARPA Defense Sciences Office (DSO). Program PI: R. Ghrist (UIUC). Penn PI: G. J. Pappas. Penn Co-PIs: A. Jadbabaie, D. Koditschek, and V. Kumar. Total \$ 8,000,000. Penn share \$1,100,000. Oct 2006-Sep 2010

- *SWARMS: Scalable sWarms of Autonomous Robots and Mobile Sensors*. ARO MURI Award. PI: V. Kumar, Penn Co-PIs: A. Jadbabaie, G. J. Pappas, and D. Koditschek. Other institutions, Yale, Berkeley, MIT, UCSB. \$5,000,000 Sep 2005- Sep 2010
- *Workshop Proposal: Swarming in Natural and Engineered Systems*. ARO. PIs: A. Jadbabaie, V. Kumar, and G. J. Pappas. \$30,000 June 2005
- *Distributed Coordination Strategies for Mobile Autonomous Agents*, NSF CAREER Award. PI: A. Jadbabaie. \$ 400,000. Jan 2004-Jan 2009. No Cost Extension till April 2010
- *Vision-based Coordination of Multi-Vehicle Systems*, ONR Math, Computer and Information Sciences Division. PI: A. Jadbabaie, \$345,000. May 2006-May 2009
- *Distributed Coordination and Cooperative Surveillance in Multi-Vehicle Systems*, Office of Naval Research (ONR) DURIP Program. PI : A. Jadbabaie, co-PI(s): V. Kumar, G. J. Pappas \$ 280,877, May 2007
- *Scalable algorithms for reachability analysis and safety verification of hybrid systems*. NSF Embedded and Hybrid Systems Program. PI: Calin Belta. Co-PIs: A. Jadbabaie and V. Kumar. \$ 300,000. Sep. 2004-Sep 2008
- *An Optimization-Based Approach to Distributed Coordination of Unmanned Aerial Vehicles (UAVs)*, ONR Young Investigator Award (YIP). PI: A. Jadbabaie. \$ 300,000. June 2004-June 2007
- *Heterogeneous Urban RSTA Teams (HURT) - Planning and Control*. DARPA Information Exploitation Office, Subcontract to Honeywell Laboratories. PI : George J. Pappas, co-PI(s): Ali Jadbabaie and V. Kumar, \$749,000, June 2004- June 2005
- *Multiple Agents in Groups for Networked, Unmanned Missions (MAGNUM)*. Army Research Office (ARO) DURIP Program PI : George J. Pappas, co-PI(s) : K. Daniilidis, A. Jadbabaie, V. Kumar, C.J. Taylor \$ 282,008, May 2004-May 2005
- *Adaptive Coordinated Control in the Multi-Agent 3D Dynamic Battlefield (ACCLIMATE)* Army Research Office MURI (UC Berkeley, Penn, CMU) PI : S. Sastry, Penn co-PI(s): K. Daniilidis, A. Jadbabaie V. Kumar, G. J. Pappas, C.J. Taylor. \$5,000,000, June 2002-June 2007

## Government Panels and Reviews

- RAND Workshop on Social-Behavioral Modeling and Simulation, April 2017
- Panelist and invited participant NITRD Workshop on Engineered Complex Networks
- Panelist, NSF Expeditions Program, Reverse Site Visit panel
- Panelist and reviewer for NSF Program on Control, Networks and Computational intelligence and PCAN (Jan. 2004, Jan. 2005, May 2006, 2009, 2010, 2011, 2012), NSF Program on Dynamics and Control (May 2006), NSF Program on Cyber Systems, (February 2006), NSF Control Systems Program (February 2007, 2009), Sensor Networks (2012)
- Reviewer for European Research Council
- Reviewer for National Security faculty fellows program
- Reviewer for the Dutch National Science Foundation.
- Reviewer for Canadian Research Council
- Reviewer for Petro Canada Young Innovator Award Program

- Reviewer for Army research Office
- Reviewer for Air Force Office of Scientific Research
- Reviewers for Qatar Science Foundation
- Invited participant, DoD/University of Maryland workshop on adaptive behavior of complex network centric systems
- Panelist, NSF workshop on writing an NSF CAREER proposal, Dec. 2003 and Dec. 2004

### **Media/Web Coverage**

- Philadelphia Inquirer article, "A lifesaving chain, from Hollywood to Philadelphia," [http://articles.philly.com/2014-05-25/news/50085669\\_1\\_cold-chain-sean-penn-haiti](http://articles.philly.com/2014-05-25/news/50085669_1_cold-chain-sean-penn-haiti)
- Science News Interview, May 2011
- Featured on NSF's website on Knowledge and Distributed Intelligence (KDI) initiative. <http://www.cise.nsf.gov/kdi/people/coord.html>
- Science News magazine feature. May 2007

### **Citizenship**

- US Citizen

### **Personal Data**

- Married to Nikroo Hashemi M.D., MPH

### **Extracurricular Activities**

- Classical Guitar (recordings available at <http://web.mit.edu/~jadbabai/www/guitar.html>)
- Advisor to Energize The Chain, a non-profit organization focused on using cellphone towers to power vaccine freezers in off-grid parts of the developing world. <http://energizethechain.org>