Hamid Mahboubi

University of California, Berkeley
Department of Industrial Engineering and Operations Research

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Education and Academic Appointments

- **University of California, Berkeley,** Berkeley, CA, USA
  Postdoctoral Fellow

- **Harvard University,** Cambridge, MA, USA
  Postdoctoral Fellow

- **McGill University,** Montreal, Quebec, Canada
  Postdoctoral Fellow

- **Concordia University,** Montreal, Quebec, Canada
  Ph.D. in Electrical Engineering

- **Tehran University,** Tehran, Iran
  M. Sc. in Electrical Engineering

- **Sharif University of Technology,** Tehran, Iran
  B. Sc. in Electrical Engineering

Selected Awards and Honors

- **Governor General of Canada Academic Gold Medal** (The highest academic recognition for a graduate student at Canadian universities)

- **Natural Sciences and Engineering Research Council of Canada (NSERC) Postdoctoral Fellowship** (rank 4 out of the 579 applications reviewed by the NSERC Selection Committee)

- **Concordia University Distinguished Doctoral Dissertation Prize in Engineering and Natural Science** (Single prize awarded annually, when merited, to the most deserving graduate of the doctoral program)

- **Fonds Quebecois de la Recherche sur la Nature et les Technologies (FQRNT) Postdoctoral Award**

- **The Doctoral Prize in Engineering and Computer Science** (Single prize awarded annually, when merited, to the most deserving graduate of the doctoral program in the faculty of Engineering and Computer Science)

- **Bourse d'Etudes Hydro Quebec Scholarship**

- **Carolyn and Richard Renaud Teaching Assistantships Award**

- **Canada Steamship Lines Inc. Award in Transportation Studies**

- **Power Corporation of Canada Graduate Fellowship Award**

- **Best Paper Award** in the 2011 International Conference on Sensor Technologies and Applications

- **Canadian National Award in Transportation**

- **Concordia University Graduate Fellowship Award**

- **Gold Medalist** of the 16th **National Mathematical Olympiad**

Selected Publications

Book Chapters

BC1) **H. Mahboubi,** A. G. Aghdam and K. Sayrafian-pour, "Area Coverage in a Fixed-Obstacle Environment using Mobile Sensor Networks", Control and Systems Engineering, *Springer*, pp. 135-151, 2015.

BC2) **H. Mahboubi,** S. Blouin and A. G. Aghdam, "Long-range Passive Doppler-Only Target Tracking by Single-Hydrophone Underwater Sensors with Mobility", Adaptive Mobile Computing: Advances in Processing Mobile Data Sets, *Springer,* forthcoming.

Journal Papers

J1) **H. Mahboubi,** K. Moezzi, A. G. Aghdam and K. Sayrafian-Pour, "Distributed Sensor Coordination Algorithms for Efficient Coverage in a Network of Heterogeneous Mobile Sensors", *IEEE Transactions on Automatic Control*, forthcoming.

J2) **H. Mahboubi,** M. Vaezi and F. Labeau, "Mobile Sensors Deployment Subject to Location Estimation Error", IEEE *Transactions on Vehicular Technology,* vol. 66, no. 1, pp. 668-678, 2017.

J3) **H. Mahboubi,** W. Masoudimansour, A. G. Aghdam and K. Sayrafian-Pour, "Maximum Lifetime Strategy for Target Tracking with Controlled Node Mobility in Sensor Networks with Obstacles", *IEEE Transactions on Automatic Control,* vol. 61, no. 11, pp. 3493-3508, 2016.

J4) J. Habibi, **H. Mahboubi** and A. G. Aghdam, "Distributed Coverage Control of Mobile Sensor Networks subject to Measurement Error", *IEEE Transactions on Automatic Control,* vol. 61, no. 11, pp. 3330-3343, 2016.

J5) **H. Mahboubi** and A. G. Aghdam, "Distributed Deployment Algorithms for Coverage Improvement in a Network of Wireless Mobile Sensors: Relocation by Virtual Force", *IEEE Transactions on Control of Network Systems*, forthcoming.

J6) **H. Mahboubi,** W. Masoudimansour, A. G. Aghdam and K. Sayrafian-Pour, "An energy-efficient target tracking strategy for mobile sensor networks", *IEEE Transactions on Cybernetic,* vol. 47, no. 2, pp. 511-523, 2017.

J7) J. Habibi, **H. Mahboubi** and A. G. Aghdam, "A gradient-based coverage optimization strategy for mobile sensor networks", *IEEE Transactions on Control of Network Systems*, forthcoming.

J8) **H. Mahboubi,** A. G. Aghdam and K. Sayrafian-Pour, "Toward Autonomous Mobile Sensor Networks Technology", *IEEE Transactions on Industrial Informatics,* vol. 12, no. 2, pp. 1457-1464, 2017.

J9) M. Asadi, **H. Mahboubi,** J. Habibi, A. G. Aghdam and S. Blouin, "Connectivity Assessment of Random Directed Graphs with Applications to Underwater Sensor Networks", *IEEE Transactions on Control Systems Technology,* vol. 25, no. 4, pp. 576-586, 2016.

J10) **H. Mahboubi,** K. Moezzi, A. G. Aghdam and K. Sayrafian-pour, "Distributed Deployment Algorithms for Efficient Coverage in a Network of Mobile Sensors with Nonidentical Sensing Capabilities", *IEEE Transactions on Vehicular Technology,* vol. 63, no. 8, pp. 3998-4016, 2014.

J11) F. Sharifi, A. Chamseddine, **H. Mahboubi,** A. G. Aghdam and Y. M. Zhang, "A distributed deployment strategy for a network of cooperative autonomous vehicles", *IEEE Transactions on Control Systems Technology,* vol. 23, no. 2, pp. 737-745, 2015.

J12) **H. Mahboubi,** K. Moezzi, A. G. Aghdam, K. Sayrafian-pour and V. Marbukh, "Distributed Deployment Algorithms for Improved Coverage in a Network of Wireless Mobile Sensors", *IEEE Transactions on Industrial Informatics,* vol. 10, no. 1, pp. 163-174, 2014.

J13) **H. Mahboubi,** J. Habibi, A. G. Aghdam and K. Sayrafian-pour, "Distributed Deployment Strategies for Efficient Coverage in a Network of Mobile Sensors with Prioritized Sensing Field", *IEEE Transactions on Industrial Informatics,* vol. 9, no. 1, pp. 451-461, 2013.

J14) **H. Mahboubi,** A. Momeni, A. G. Aghdam, K. Sayrafian-pour and V. Marbukh , "An Efficient Target Monitoring Scheme with Controlled Node Mobility for Sensor Networks", *IEEE Transactions on Control Systems Technology,* vol. 20, no. 6, pp. 1522-1532, 2012.

Submitted Papers

J15) **H. Mahboubi,** M. Asadi, A. G. Aghdam and S. Blouin, "Network Connectivity Estimation through Local Data Exchange in an Underwater Network of Acoustic Sensors", submitted to *IEEE Transactions on Vehicular Technology.*

J16) **H. Mahboubi,** F. Sharifi, A. G. Aghdam and Y. M. Zhang, "Distributed coordination of a network of agents with limited communication range in the presence of obstacles", submitted to *IEEE Transactions on Automatic Control.*

J17) **H. Mahboubi** and F. Labeau, "Cooperative Deployment Algorithms for Prioritized Coverage of a Field under Limited Communication and Measurement Error", submitted to *IEEE Transactions on Vehicular Technology.*

Peer-reviewed Conference Papers

C1) **H. Mahboubi,** M. Asadi, A.G. Aghdam and S. Blouin, "A Computationally Efficient Connectivity Measure for Random Graphs", in *Proceedings of IEEE Global Communications Conference*, 2015,pp.1-6.

C2) **H. Mahboubi** and A. G. Aghdam, "Self-deployment Algorithms for Coverage Improvement in a Network of Nonidentical Mobile Sensors with Limited Communication Ranges," in *Proceedings of American Control Conference*, 2013, pp. 6882-6887

C3) **H. Mahboubi** and A. G. Aghdam, "Distributed Deployment Strategies to Increase Coverage in a Network of Wireless Mobile Sensors," in *Proceedings of American Control Conference*, 2013, pp. 5887-5892.

C4) **H. Mahboubi,** J. Habibi, A. G. Aghdam and K. Sayrafian-pour, "Distributed Coverage Optimization in a Network of Static and Mobile Sensors", *Proceedings of American Control Conference*, 2013, pp. 6877-6881.

C5) **H. Mahboubi,** and A. G. Aghdam, "An energy-efficient strategy to improve coverage in a network of wireless mobile sensors with nonidentical sensing ranges", in *Proceedings of IEEE 77th Vehicular Technology Conference,* 2013, pp. 1-5.

C6) M. Asadi, **H. Mahboubi,** A. G. Aghdam and S. Blouin, "Connectivity Measures for Directed Random Graphs with Applications to Underwater Sensor Networks", in *Proceedings of IEEE CCECE 2015,* 2015, pp. 208-2012 **(Best Paper Award Finalist).**

C7) **H. Mahboubi,** F. Sharifi, A. G. Aghdam and Y. M. Zhang, "Distributed coordination of a network of nonidentical agents with limited communication capabilities in the presence of fixed obstacles", in *Proceedings of American Control Conference*, 2013, pp. 5398-5403.

C8) F. Sharifi, **H. Mahboubi,** A. G. Aghdam and Y. M. Zhang, "A Coverage strategy with guaranteed collision avoidance in multi-agent systems using navigation functions", in *Proceedings of AIAA Guidance, Navigation, and Control Conference,* 2013.

C9) **H. Mahboubi,** M. Vaezi and F. Labeau, "Sensors Deployment Algorithms under Limited Communication Range and Measurement Error", in *Proceedings of IEEE 81st Vehicular Technology Conference,* 2015, pp. 1-5.

C10) **H. Mahboubi,** M. Vaezi and F. Labeau, "Mobile Sensors Deployment Subject to Measurement Error", in *Proceedings of IEEE 80th Vehicular Technology Conference,* 2014, pp. 1-6.

C11) **H. Mahboubi,** W. Masoudimansour, A. G. Aghdam and K. Sayrafian-pour, "Maximum Life Span Strategy for Target Tracking in Mobile Sensor Networks", in *Proceedings of American Control Conference*, 2012, pp. 5096-5101.

C12) J. Habibi, **H. Mahboubi** and A. G. Aghdam, "Distributed coverage optimization in a network of mobile agents subject to measurement error", in *Proceedings of American Control Conference*, 2012, pp. 4510-4515.

C13) **H. Mahboubi,** F. Sharifi, A. G. Aghdam and Y. M. Zhang, "Distributed Coordination of Multi-Agent Systems for Coverage Problem in Presence of Obstacles", in *Proceedings of American Control Conference*, 2012, pp. 5252-5257.

C14) M. Tousi, A. Ajorlou, **H. Mahboubi,** and A. G. Aghdam, "Decentralized pole-placement using generalized sampled-data hold functions", in *Proceedings of the 51th IEEE Conference on Decision and Control,* 2012, pp. 6921-6925.

C15) **H. Mahboubi** and F. Labeau, "Distributed Deployment Algorithms in a Network of Nonidentical Mobile Sensors Subject to Location Estimation Error," accepted in *IEEE Sensors*, 2015.

C16) **H. Mahboubi,** K. Moezzi, A. G. Aghdam, K. Sayrafian-pour and V. Marbukh, "Self-Deployment Algorithms for Field Coverage in a Network of Nonidentical Mobile Sensors: Vertex-Based Approach", in *Proceedings of American Control Conference*, 2011, pp. 3227-3232.

C17) **H. Mahboubi,** M. Asadi, A. G. Aghdam and S. Blouin, "A Computationally Efficient Connectivity Measure for Random Graphs", accepted in *IEEE Global Communications Conference*, 2015.

C18) **H. Mahboubi,** K. Moezzi, A.G. Aghdam and K.Sayrafian-pour,"Self-Deployment Algorithms for Field Coverage in a Network of Nonidentical Mobile Sensors", in *Proceedings of IEEE International Conference on Communications*, 2011, pp. 1-6.

C19) W. Masoudimansour, **H. Mahboubi,** A. G. Aghdam and K. Sayrafian-Pour, "Maximum lifetime strategy for target monitoring in a mobile sensor network with obstacles", in *Proceedings of the 51th IEEE Conference on Decision and Control,* 2012, pp. 1404-1410.

C20) **H. Mahboubi,** M. Vaezi and F. Labeau, "Distributed Deployment Algorithms in a Network of Nonidentical Mobile Sensors Subject to Location Estimation Error," in *Proceedings of IEEE Sensors*, 2014, pp. 1-4.

C21) **H. Mahboubi,** J. Habibi, A. G. Aghdam and K. Sayrafian-pour, "Cooperative Self-Deployment Strategies in a Mobile Sensor Network with Prioritized Coverage Plan", in *Proceedings of IEEE Global Communications Conference*, 2011, pp. 1-6.

C22) **H. Mahboubi,** W. Masoudimansour, A. G. Aghdam and K. Sayrafian-Pour, "Cost-efficient routing with controlled node mobility in sensor networks", in *Proceedings of IEEE Multiconference on Systems and Control,* 2011, pp. 1238-1243.

C23) F. Sharifi, Y. M. Zhang, **H. Mahboubi,** and A. G. Aghdam, "Coverage control in multi-agent systems subject to communication delays", in *Proceedings of IEEE/ASME International Conference on Mechatronics and Embedded Systems and Applications,* 2012, pp. 269-274.

C24) J. Habibi, **H. Mahboubi** and A. G. Aghdam, "A nonlinear optimization approach to coverage problem in mobile sensor networks", in *Proceedings of the 50th IEEE Conference on Decision and Control,* 2011, pp. 7255-7261.

C25) **H. Mahboubi** and F. Labeau, "Distributed Deployment Strategies for Prioritized Coverage of a Field under Measurement Error and Limited Communication Capabilities", accepted in *82th Vehicular Technology Conference,* Fall 2015

C26) **H. Mahboubi,** K. Moezzi, A. G. Aghdam, K. Sayrafian-Pour and V. Marbukh, "Distributed deployment algorithms for improved coverage in mobile sensor networks", in *Proceedings of IEEE Multiconference on Systems and Control,* 2011, pp. 1244-1249.

C27) V. Marbukh, K. Sayrafian-pour, **H. Mahboubi,** A. Momeni, and A. G. Aghdam, "Cooperative sensor relocation in a mobile sensor network by distributed subgradient algorithm", in *Proceedings of International Conference on Sensor Technologies and Applications,* 2011, pp. 91-96 **(Selected as the Best Paper).**

C28) **H. Mahboubi,** K. Moezzi, A. G. Aghdam, K. Sayrafian-pour and V. Marbukh, "Self-Deployment Algorithms in Coverage Problem for a Network of Mobile Sensors with Unidentical Sensing Range", in *Proceedings of IEEE Global Communication Conference,* 2010, pp. 1-6.

C29) V. Marbukh, K. Sayrafian-Pour, **H. Mahboubi,** A. Momeni, and A.G. Aghdam, "Towards evolutionary-pricing framework for mobile sensor network self-organization", in *Proceedings of IEEE Congress on Evolutionary Computation,* 2010, pp. 4394-4401.

C30) **H. Mahboubi,** A. Momeni, A. G. Aghdam, K. Sayrafian-pour and V. Marbukh, "Optimal Target Tracking Strategy with Controlled Node Mobility in Mobile Sensor Networks", in *Proceedings of American Control Conference*, 2010, pp. 2921-2928.

Teaching Experience

- **Teaching assistant and lab instructor,** Real-Time Computer Control Systems, Concordia University
- **Teaching assistant,** Optimization Techniques, Concordia University
- **Teaching assistant,** Linear Control Systems, Concordia University
- **Teaching assistant,** Basic Circuit Design, Concordia University
- **Teaching assistant,** Probability and Statistics in Engineering, Concordia University
- **Teaching** Graph Theory, Number Theory and Euclidean Geometry in preparation courses for Iranian Mathematical Olympiad teams, participating in the International Mathematical Olympiads.

Leaderships and Services

- **Member of Editorial Board** of the IEEE SigView (IEEE Signal Processing Society), 2014-2016
- **Technical Program Committee member** of 2017 IEEE Global Communications Conference (GLOBECOM 2017)
- **Technical Program Committee member** of 2015 IEEE International Conference on Wireless for Space and Extreme Environments
- **Technical Program Committee member** of 2018 Vehicular Technology Conference (VTC2018)
- **Chair** of Control Systems Chapter of IEEE Montreal Section, 2012- 2015
- **Co-Chair** of Control Systems Chapter of IEEE Montreal Section, 2011
- **Co-Chair** of the 3rd, 4th, and 5th Semi-Annual Workshops on Control Systems, Concordia University, 2010-2011.
- **Co-Chair** of the Joint Workshop on Control and Communication Systems, McGill University, 2010.
- **Reviewer** of the IEEE Transactions on Automatic Control, IEEE Transactions on Control Systems Technology, IEEE Transactions on Wireless Communication, ACM Transactions on Sensor Networks, and IEEE Transactions on Control of Network Systems.
- **Reviewer** of the IEEE Conference on Decision and Control, American Control Conference, IEEE Multi-conference on Systems and Control, and IEEE Global Communications Conference