

Iman Shames

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Education

The Australian National University

PHD IN ENGINEERING

- Thesis Title: Coordination and Control of Autonomous Agent Formations

Canberra, Australia

February 2007 - January 2011

Shiraz University

BSC. ELECTRICAL AND ELECTRONICS ENGINEERING – CONTROL ENGINEERING

Shiraz, Iran

September 2002 - September 2006

Publications

JOURNAL PAPERS

- [J1] M Deghat, V Ugrinovskii, **I Shames**, C Langbort, “Detection and Mitigation of Biasing Attacks on Distributed Estimation Networks”, accepted in *Automatica*, 2018
- [J2] F Farokhi, **I Shames**, M Cantoni, “Optimal Contract Design for Effort-Averse Sensors”, to appear in *International Journal of Control*, 2018
- [J3] M Schulze Darup, A Redder, **I Shames**, F Farokhi, D E Quevedo, “Towards Encrypted MPC for Linear Constrained Systems”, to appear in *IEEE Control Systems Letters*, 2017
- [J4] M Cantoni, F Farokhi, E C Kerrigan, **I Shames**, “Structured Computation of Optimal Controls for Constrained Cascade Systems”, to appear in *International Journal of Control*, 2017.
- [J5] M A Fabbro, **I Shames**, M Cantoni, “Analysis of Model and Iteration Dependencies in Distributed Feasible-Point Algorithms for Optimal Control Computation,” to appear in the *Transactions on Control of Network Systems*, 2017.
- [J6] F Farokhi, **I Shames**, N Batterham, “Secure and Private Control Using Semi-Homomorphic Encryption”, *Control Engineering Practice*, Vol. 67, pp 13 – 20, 2017.
- [J7] G Bottegal, F Farokhi, **I Shames**, “Preserving Privacy of Finite Impulse Response Systems”, *IEEE Control Systems Letters*, Vol. 1, No. 1, pp. 128 - 133, 2017.
- [J8] **I Shames**, F Farokhi, T Summers, “Security Analysis of Cyber-Physical Systems Using \mathcal{H}_2 Norm,” *IET Control Theory and Applications*, Vol. 11, No. 11, pp. 1749 - 1755, 2017.
- [J9] S Guler, B Fidan, S Dasgupta, B D O Anderson, **I Shames**, “Adaptive Source Localization Based Station Keeping of Autonomous Vehicles,” the *IEEE Transactions on Automatic Control*, Vol. 62, No. 7, pp. 3122 - 3135, 2017.
- [J10] S Ahmadzadeh, **I Shames**, S Martin, D Nešić, “On Eigenvalues of Laplacian Matrix for a Class of Directed Signed Graphs”, *Linear Algebra and its Applications*, Vol. 523, pp. 281 – 306., 2017. [Correction at <https://arxiv.org/pdf/1705.04406.pdf>]
- [J11] S Ahmadzadeh, **I Shames**, S Martin, D Nešić, “Corrigendum to ‘On eigenvalues of Laplacian matrix for a class of directed signed graphs’ [*Linear Algebra Appl.* 523 (2017) 281–306]”, *Linear Algebra and its Applications*, Vol. 530, 2017, pp. 541 – 557,
- [J12] F Farokhi, **I Shames**, M Rabbat, M Johansson, “On Reconstructability of Quadratic Utility Functions from the Iterations in Gradient Methods”, *Automatica*, Vol. 66, No. 4, pp. 254 – 261, 2016
- [J13] A H Teixeira, E Ghadimi, **I Shames**, H Sandberg, M Johansson, “The ADMM Algorithm for Distributed Quadratic Problems: Parameter Selection and Constraint Preconditioning”, *IEEE Transactions on Signal Processing*, , Vol. 64, No. 2, 2016.
- [J14] **I Shames**, T Summers, “Rigid Network Design Via Sub-Modular Set Function Optimization”, *IEEE Transactions on Network Science and Engineering*, Vol. 2, No. 3, pp. 84 - 96, 2015.
- [J15] T Alpcan, **I Shames**, “An Information-based Learning Approach to Dual Control”, *IEEE Transactions On Neural Networks And Learning Systems*, Vol. 26, No. 11, pp. 2736 - 2748, 2015.
- [J16] R Shekhar, M Kearney, **I Shames**, “Robust Model Predictive Control using Waysets for UAV Trajectory Generation”, *Journal of Guidance, Control, and Dynamics*, Vol. 38, No. 10, pp. 1898 - 1907, 2015.
- [J17] M Deghat, **I Shames**, B D O Anderson, “Safe Autonomous Agent Formation Operations Via Obstacle Collision Avoidance”, *Asian Journal of Control*, Vol. 17, No. 5, pp. 1473 - 1483, 2015.
- [J18] F Farokhi, **I Shames** and M. Cantoni, “Promoting truthful behavior in participatory-sensing mechanisms.” *IEEE Signal Processing Letters*, Vol. 22, No. 10, pp. 1538-1542, 2015.
- [J19] A H Teixeira, **I Shames**, H Sandberg, K H Johansson, “A Secure Control Framework for Resource-Limited Adversaries”, *Automatica*, Vol. 51, No. 1, pp.135 - 148, 2015.
- [J20] E Ghadimi, A H Teixeira, **I Shames**, M Johansson, “Optimal parameter selection for the alternating direction method of multipliers (ADMM): quadratic problems”, *IEEE Transactions on Automatic Control*, Vol. 60, No. 3, pp. 644 - 658, 2014.
- [J21] A H Teixeira, **I Shames**, H Sandberg, K H Johansson, “Distributed Fault Detection and Isolation Resilient to Network Model Uncertainties”, *IEEE Transactions on Cybernetics*, Vol. 44, No. 11, pp. 2024 - 2037, 2014.
- [J22] M Deghat, **I Shames**, B D O Anderson, C Yu, “Localization and Circumnavigation of a Slowly Moving Target Using Bearing Measurements”, *IEEE Transactions on Automatic Control*, Vol. 59, No. 8, pp. 2182 - 2188, 2014.
- [J23] J O Swartling, **I Shames**, K H Johansson, D V Dimarogonas, “Collective Circumnavigation”, *Unmanned Systems*, Vol. 2, No. 3 pp. 219 - 229, 2014.

- [J24] E Ghadimi, **I Shames**, M Johansson, “Accelerated Gradient Methods for Networked Optimization”, IEEE Transactions on Signal Processing, Vol. 61, No. 21, pp. 5417 - 5429, 2013.
- [J25] T Summers, **I Shames**, “Active Influence in Dynamical Models of Structural Balance in Social Networks”, Europhysics Letters (EPL), 103 (2013) 18001, 2013.
- [J26] **I Shames**, A N Bishop, B D O Anderson, M Smith “Doppler Shift Target Localization”, IEEE Transactions Aerospace and Electronic Systems, Vol. 49, No. 1, pp. 266 - 276, 2013.
- [J27] **I Shames**, A N Bishop, B D O Anderson, “Analysis of Noisy Bearing-Only Network Localization”, IEEE Transactions on Automatic Control, Vol. 58, No. 1, pp. 247 - 252, 2013.
- [J28] G Piovan, **I Shames**, B Fidan, F Bullo, B D O Anderson, “On Frame and Orientation Localization for Relative Sensing Networks”, Automatica, Vol. 49, No. 1, pp. 206 - 213, 2013.
- [J29] **I Shames**, A H Teixeira, H Sandberg, K H Johansson, “Fault Detection and Mitigation in Kirchhoff Networks”, Signal Processing Letters, Vol. 19, No. 11, November, 2012.
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- [J31] **I Shames**, S Dasgupta, B Fidan, B D O Anderson, “Circumnavigation of Target Undergoing A Persistent Drift”, IEEE Transactions on Automatic Control, Vol. 57, No. 4, pp 889-903, April, 2012.
- [J32] **I Shames**, A H Teixeira, H Sandberg, K H Johansson, “Distributed Fault Detection for Interconnected Systems”, Automatica, Vol. 47, No. 12, pp. 2757-2764, 2011.
- [J33] **I Shames**, B Fidan, B D O Anderson, “Close Target Reconnaissance with Guaranteed Collision Avoidance”, International Journal of Robust and Nonlinear Control, Vol. 21, No. 16, pages 1823 - 1840, 2011.
- [J34] A N Bishop and **I Shames**, “Link Operations for Slowing the Spread of Disease in Complex Networks”, Europhysics Letters (EPL), Vol. 95, pp 18005 (p1-p6), 2011.
- [J35] **I Shames**, B Fidan, B D O Anderson, H Hmam, “Cooperative Self-localization of Mobile Agents Moving in Planar Formations”, IEEE Transactions on Aerospace and Electronic Systems, Vol 47, No. 3, pp 1926 - 1947, 2011.
- [J36] B D O Anderson, **I Shames**, G Mao, B Fidan, “Formal Theory of Noisy Sensor Network Localization”, SIAM Journal on Discrete Mathematics, Vol. 24, No. 2, pp. 684-698, 2010.
- [J37] **I Shames** and A N Bishop. “Relative clock synchronization in wireless networks”, IEEE Communications Letters, Vol. 14, No. 4, 2010.
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- [J40] B Moghtaderi, **I Shames**, L Djenidi “Microfluidic Characteristics of a Multi-holed Baffle Plate Micro-Reactor”, International Journal of Heat and Fluid Flow, Vol. 27, No. 6, pp 1069-1077, 2006.

BOOK CHAPTERS

- [B1] F Farokhi, **I Shames**, and K H Johansson, Distributed MPC Made Easy, “Distributed MPC Via Dual Decomposition and Alternating Direction Method of Multipliers”, pp. 115-131, 2014.
- [B2] **I Shames**, B Fidan, B D O Anderson, and H Hmam, Position Location - Theory, Practice and Advances: A Handbook for Engineers and Academics, chapter 24, “Polynomial Based Methods for Cooperative Localization in Multiagent Systems”, John Wiley & Sons, 2011.
- [B3] **I Shames**, B Fidan, B D O Anderson, and H Hmam, Position Location - Theory, Practice and Advances: A Handbook for Engineers and Academics, chapter 27, “Self-Localization of UAV Formations Using Bearing Measurements”, John Wiley & Sons, 2011.

CONFERENCE PAPERS

- [C1] F Farokhi, I Shames, “Bilateral Trade under Information Asymmetry and Quantized Measurements”, in the Proc. of the IEEE Conference on Decision and Control (CDC), Fontainebleau, Miami Beach, FL, USA on Dec. 17-19, 2018.
- [C2] Y Lin, F Farokhi, I Shames, D Nešić, “Secure Control of Nonlinear Systems Using Semi-Homomorphic Encryption”, in the Proc. of the IEEE Conference on Decision and Control (CDC), Fontainebleau, Miami Beach, FL, USA on Dec. 17-19, 2018.
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- [C4] D Selvaratnam, I Shames, J Manton, M Zamani, “Numerical Optimisation of Time-Varying Strongly Convex Functions Subject to Time-Varying Constraints”, in the Proc. of the IEEE Conference on Decision and Control (CDC), Fontainebleau, Miami Beach, FL, USA on Dec. 17-19, 2018.
- [C5] W Wang, D Nešić, I Shames, “Periodic event-triggered supervisory control of nonlinear systems: dwell-time switching logic”, in the Proc. of the IEEE Conference on Decision and Control (CDC), Fontainebleau, Miami Beach, FL, USA on Dec. 17-19, 2018. A Lang, I Shames, M Cantoni, “Structure in Total Least Squares Parameter Estimation for Electrical Networks?”, in the Proc. of the 7th IFAC Workshop on Distributed Estimation and Control in Networked Systems, The Netherlands, Aug, 2018
- [C6] F Farokhi, **I Shames**, “Compressive Sensing in Fault Detection”, in the Proc. of the American Control Conference, Milwaukee, WI, USA, June 2018
- [C7] **I Shames**, A Dostovalova, J Kim, H Hmam, “Task Allocation and Motion Control for Threat-Seduction Decoys,” in the Proc. of the 56th IEEE Conference on Decision and Control, Melbourne, Australia, Dec, 2017
- [C8] D Selvaratnam, **I Shames**, D V Dimarogonas, J H Manton, B Ristić, “Co-operative Estimation for Source Localisation using Binary Sensors,” in the Proc. of the 56th IEEE Conference on Decision and Control, Melbourne, Australia, Dec, 2017
- [C9] F Farokhi, **I Shames**, K H Johansson, “Private and Secure Coordination of Match-Making for Heavy-Duty Vehicle Platooning,” in the Proc. of the 20th IFAC World Congress, Toulouse, France, July 2017.
- [C10] **I Shames**, F Farokhi, M Cantoni, “Guaranteed maximum power point tracking by scalar iterations with quadratic convergence rate”, in Proc. of the 55th IEEE Conference on Decision and Control, Las Vegas, USA, Dec, 2016.
- [C11] F Farokhi, **I Shames**, “Preserving Privacy of Agents in Participatory-Sensing Schemes for Traffic Estimation”, in Proc. of the 55th IEEE Conference on Decision and Control, Las Vegas, USA, Dec, 2016.
- [C12] Z Ju, **I Shames**, D Nešić, “Ensuring Communication Connectivity in Multi-agent Systems in the Presence of Uncooperative Clients”, in Proc.

- of the 55th IEEE Conference on Decision and Control, Las Vegas, USA, Dec, 2016.
- [C13] M Deghat, V Ugrinovskii, **I Shames**, C Langbort, “Detection of Biasing Attacks on Distributed Estimation Networks”, in Proc. of the 55th IEEE Conference on Decision and Control, Las Vegas, USA, Dec, 2016.
- [C14] M Cantoni, F Farokhi, E Kerrigan, **I Shames**, “A Scalable QP Solver for Optimal Control of Cascades with Constraints”, in Proceedings of the Australian Control Conference (AUCC 2016), Newcastle, Australia, November 3-4, 2016.
- [C15] F Farokhi, M Cantoni, and **I Shames**, “A Game-Theoretic Approach to Scheduling Rigid Demands on Dynamical Systems”, in Proceedings of the Australian Control Conference (AUCC 2016), Newcastle, Australia, November 3-4, 2016.
- [C16] F Farokhi, **I Shames**, N Batterham, “Secure and Private Cloud-Based Control Using Semi-Homomorphic Encryption”, in Proc. of the 6th IFAC Workshop on Distributed Estimation and Control in Networked Systems (NecSys’16), Tokyo, Japan, Sept 2016.
- [C17] T H Summers, **I Shames**, “Convex relaxations and Gramian rank constraints for sensor and actuator selection”, in Proc. of the International Symposium on Intelligent Control (ISIC), Buenos Aires, Argentina, Sept 2016.
- [C18] D D Selvaratnam, **I Shames**, B Ristic, J Manton, “The Effect of Sensor Modality on Posterior Cramer-Rao Bounds for Simultaneous Localisation and Mapping” to appear in the Proc. of the 9th IFAC Symposium on Intelligent Autonomous Vehicles, Messe Leipzig, Germany, June-July, 2016.
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- [C20] **I Shames**, T H Summers, F Farokhi, R C Shekhar, “Conditions and Strategies for Uniqueness of the Solutions to Cooperative Localization and Mapping Problems Using Rigidity Theory,” In Proc. of the 54th IEEE Conference on Decision and Control (CDC 2015), Osaka, Japan, Dec., 2015.
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- [C22] F Farokhi, H Sandberg, **I Shames**, M. Cantoni, “Quadratic Gaussian Privacy Game,” In Proc. of the 54th IEEE Conference on Decision and Control (CDC 2015), Osaka, Japan, Dec., 2015.
- [C23] R C Shekhar, M Kearney, **I Shames**, C Manzie, “Trajectory Planning and Execution Using Robust Funnels”, In Proc. of the Australian Control Conference, Gold Coast, Australia, Nov., 2015
- [C24] T H Summers, **I Shames**, J Lygeros, F Dorfler. “Topology design for optimal network coherence”, In Proc. of the European Control Conference, 2015.
- [C25] A Neshastehriz, M Cantoni, **I Shames**, “A Computationally Advantageous Reparameterisation Of A Robust Model Predictive Control Scheme”, In Proc. of Australian Control Conference, Canberra, Australia, November 2014.
- [C26] M Zamani, **I Shames**, V Ugrinovskii, “Minimum-Energy Distributed Consensus of Uncertain Agents”, in Proc. of the IEEE Conference on Decision and Control, Los Angeles, USA, 2014.
- [C27] **I Shames**, T H Summers, M Cantoni, “Manipulating Factions Evolved in Signed Networks”, in Proc. of the 21st International Symposium on Mathematical Theory of Networks and Systems (MTNS), Groningen, the Netherlands, July 2014.
- [C28] **I Shames**, M Cantoni, “Constrained Linear Quadratic Control in Networks with Limited Model-Information Sharing”, in Proc. of the 21st International Symposium on Mathematical Theory of Networks and Systems (MTNS), Groningen, the Netherlands, July 2014.
- [C29] C Briat, A Gupta, **I Shames**, M H Khammash, “Scalable Tests for Ergodicity Analysis of Large-scale Interconnected Stochastic Reaction Networks”, in Proc. of the 21st International Symposium on Mathematical Theory of Networks and Systems (MTNS), Groningen, the Netherlands, July 2014.
- [C30] **I Shames**, T H Summers, “Network Design Via Modular Functions Optimization in Localization Problems”, in Proc. of the 8th IEEE Sensor Array And Multichannel Signal Processing Workshop (SAM14), A Cruna, Spain, 2014.
- [C31] A Neshastehriz, M Cantoni, **I Shames**, “Water-level reference planning for automated irrigation channels via robust MPC”, in Proc. of the European Control Conference, Strasbourg, France, June 2014.
- [C32] A M H Teixeira, E Ghadimi, **I Shames**, H Sandberg, M Johansson, “Optimal scaling of the ADMM algorithm for distributed quadratic programming”, In Proc. of IEEE Conference on Decision and Control (CDC’13), Florence, Italy, December 2013.
- [C33] A Neshastehriz, **I Shames**, M Cantoni, “Model predictive control for a class of systems with uncertainty in scheduled load”, In Proc. of Australian Control Conference, pp 301-306, Perth, Australia, November 2013.
- [C34] **I Shames**, M Cantoni, “Structured Computation of Constrained Quadratic Optimal Controls for Heterogeneous Networks”, In Proc. IFAC Workshop on Estimation and Control of Networked Systems NecSys, pp. 43-48, Germany, September 2013.
- [C35] **I Shames**, M Cantoni, “On Computing Quadratic Controls for Acyclic Networks of Heterogeneous Systems”, In Proc. of the European Control Conference, pp. 3306-3311, Zurich, Switzerland, July 2013.
- [C36] T Alpcan, **I Shames**, M Cantoni, G Nair, “Learning and Information for Dual Control”, In Proc. of the Asian Control Conference, pp. 1-6, Istanbul, Turkey, June 2013.
- [C37] T H Summers, **I Shames**, “Active Influence in Dynamical Models of Structural Balance in Social Networks”, Workshop for Information and Decisions in Social Networks (WIDS 2012), Cambridge, MA, November 2012.
- [C38] J Weimer, A Ahmadi, J Araujo, F Mele, D Papale, **I Shames**, H Sandberg, K H Johansson, “Active Actuator Fault Detection and Diagnostics in HVAC Systems”, Fourth ACM Workshop On Embedded Sensing Systems For Energy-Eciency In Buildings 2012, Toronto, Canada, November 2012.
- [C39] **I Shames**, T Charalambous, C Hadjicostis, M Johansson, “Distributed Network Size Estimation and Average Degree Estimation and Control in Networks Isomorphic to Directed Graphs”, In Proc. 50th Annual Allerton Conference on Communication, Control, and Computing, pp. 1885-1892, 2012.
- [C40] A Teixeira, **I Shames**, H Sandberg, K H Johansson, “Revealing Stealthy Attacks in Control Systems”, In Proc. of 50th Annual Allerton Conference on Communication, Control, and Computing, pp. 1806-1813, 2012.
- [C41] S A Ahmadi, **I Shames**, F Scotton, L Huang, H Sandberg, K H Johansson, B. Wahlberg, “Towards More Efficient Building Energy Management Systems”, In Proc. 7th International Conference on Knowledge, Information and Creativity Support Systems Melbourne, Australia, November 8 - 10, 2012.
- [C42] E Ghadimi, A M H Teixeira, **I Shames** and M Johansson, “On the Optimal Step-size Selection for the Alternating Direction Method of Multipliers”, In Proc. IFAC Workshop on Estimation and Control of Networked Systems, pp. 139-144, Santa Barbara, CA, USA, September, 2012.
- [C43] M Deghat, E Davis, T See, **I Shames**, B D O Anderson, C Yu, “Target Localization and Circumnavigation by a Non-holonomic Robot”, In the 2012 IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS 2012), October 7-12, pp. 1227-1232, Vilamoura, Algarve,

- Portugal, 2012.
- [C44] **I Shames**, A M H Teixeira, H Sandberg, K H Johansson, “Distributed Fault Detection and Isolation with Imprecise Network Models”, In Proc. American Control Conference, pp. 5906-5911, Montreal, Canada, June, 2012.
- [C45] A N Bishop, **I Shames**, B. D. O. Anderson, “Stabilization of Rigid Formations with Direction-Only Constraints”, in 50th IEEE Conference on Decision and Control and European Control Conference (CDC-ECC), pp. 746-752, Orlando, USA, 2011.
- [C46] **I Shames**, A N Bishop, M Smith, B D O Anderson, “Target Velocity and Position Estimation Via Doppler Shift Measurements”, in the Australian Control Conference, pp 507-512, Melbourne, Australia, 2011.
- [C47] **I Shames**, A N Bishop, “Distributed Relative Clock Synchronization for Wireless Sensor Networks”, In 18th World Congress of the International Federation of Automatic Control, (IFAC 2011), Milan, Italy, 2011.
- [C48] **I Shames**, M Deghat, B D O Anderson, “Safe Formation Control and Coordination with Obstacle Avoidance”, In 18th World Congress of the International Federation of Automatic Control, (IFAC 2011), pp 11252 - 11257, Milan, Italy, 2011.
- [C49] M Deghat, **I Shames**, B D O Anderson, J M F Moura, “Distributed Localization Via Barycentric Coordinates: Finite-Time Convergence”, In 18th World Congress of the International Federation of Automatic Control, (IFAC 2011), pp 7824 - 7829, Milan, Italy, 2011.
- [C50] A N Bishop, **I Shames**, “Noisy Network Localization via Optimal Measurement Refinement Part 1: Bearing-Only Orientation Registration and Localization”, In 18th World Congress of the International Federation of Automatic Control, (IFAC 2011), pp. 8842-8846, Milan, Italy, 2011.
- [C51] **I Shames**, A N Bishop, “Noisy Network Localization via Optimal Measurement Refinement Part 2: Distance-Only Localization”, In 18th World Congress of the International Federation of Automatic Control, (IFAC 2011), pp. 8847-8853, Milan, Italy, 2011.
- [C52] E Ghadimi, M Johansson, **I Shames**, “Accelerated Gradient Methods for Networked Optimization”, Proc. American Control Conference, pp 1668-1673, San Francisco, CA, June-July, 2011.
- [C53] A N Bishop, **I Shames**, “A Model for Optimal and Robust Control with Time-Varying Computing Constraints” Proc. 6th Int. Conf. on Intelligent Sensors, Sensor Networks and Information Processing (ISSNIP), pp. 217-222, Brisbane, Australia, December 2010.
- [C54] I Bayezit, B Fidan, M Amini, **I Shames**, “Cohesive Motion Control of Autonomous Formations in Three Dimensions”, Proc. 6th Int. Conf. on Intelligent Sensors, Sensor Networks and Information Processing (ISSNIP), pp. 205-210, Brisbane, Australia, December 2010.
- [C55] **I Shames**, A M H Teixeira, H Sandberg, K H Johansson, “Distributed Leader Selection without Direct Inter-agent Communication”, 2nd IFAC Workshop on Estimation and Control of Networked Systems, pages 221-226, Annecy, France, 2010.
- [C56] I Bayezit, M Amini, B Fidan, **I Shames**, “Cohesive Motion Control of Quadrotor Vehicle Formation”, Proceedings of the ASME 2010 International Mechanical Engineering Congress & Exposition, IMECE2010-40740, Vancouver, Canada, November 2010.
- [C57] M Deghat, **I Shames**, B D O Anderson, C Yu, “Target Localization and Circumnavigation Using Bearing Measurements in 2D”, in Proc. 49th IEEE Conference on Decision and Control, pp 334-339, Atlanta, GA, USA, 2010.
- [C58] **I Shames**, A M H Teixeira, H Sandberg, K H Johansson, “Distributed Fault Detection for Interconnected Second-Order Systems with Applications to Power Networks”, First Workshop on Secure Control Systems (SCS), Stockholm, Sweden, 2010
- [C59] **I Shames**, B D O Anderson, and B Fidan, “On the use of convex optimization in sensor network localization and synchronization”. in Proc. IFAC Workshop on Estimation and Control of Networked Systems, pages 228–233, Venice, Italy, 2009.
- [C60] **I Shames**, B D O Anderson, X F Wang, and B Fidan. “Network synchronizability enhancement using convex optimization”, in Proc. European Control Conference, pages 2067–2072, 2009.
- [C61] **I Shames**, S Dasgupta, B Fidan, and B D O Anderson. “Circumnavigation using distance measurements”, in Proc. European Control Conference, pages 2444–2449, Budapest, Hungary, 2009.
- [C62] R Soukieh, **I Shames**, and B Fidan. “Obstacle avoidance of non-holonomic unicycle robots based on Fluid mechanical modeling”, in Proc. European Control Conference, pages 3269–3274, Budapest, Hungary, 2009.
- [C63] R Soukieh, **I Shames**, and B Fidan. “Obstacle avoidance of robotic formations based on Fluid mechanical modeling”, in Proc. European Control Conference, pages 3263–3268, Budapest, Hungary, 2009.
- [C64] **I. Shames**, P T Bibalan, B Fidan, B D O Anderson, “Polynomial methods in noisy network localization”, in Proc. 17th Mediterranean Conference on Control and Automation, pp. 1307-1312, June 2009.
- [C65] G Piovani, **I Shames**, B Fidan, F Bullo, B D O Anderson, “On frame and orientation localization for relative sensing networks”, in Proc. 47th IEEE Conference on Decision and Control, pp. 2326-2331, Cancun, Mexico, December 2008.
- [C66] **I Shames**, B Fidan, B D O Anderson, “Close Target Reconnaissance Using Autonomous UAV Formations”, in Proc. 47th IEEE Conference on Decision and Control, pp. 1729-1734, Cancun, Mexico, December 2008.
- [C67] **I Shames**, B Fidan, B D O Anderson, “Reduction of Self-localization Errors in Multi-Agent Autonomous Formations”, in Proc. 17th World Congress of Int. Federation of Automatic Control (IFAC’08), pp. 6578-6583, Seoul, Korea, July 2008.
- [C68] **I Shames**, B Fidan, B D O Anderson, H Hmam, “Self-localization of Mobile Agents in the Plane”, in IEEE Int. Symposium on Wireless Pervasive Computing, pp. 116-120, Santorini, Greece, May 2008.
- [C69] **I Shames**, C Yu, B Fidan, B D O Anderson, “Externally Excited Coordination of Autonomous Formations”, in Proc. 15th Mediterranean Conference on Control and Automation, Athens, Greece, June 2007.
- [C70] C Yu, B Fidan, **I Shames**, S Sandeep, B D O Anderson, “Collision Free Coordination of Autonomous Multiagent System”, in Proc. European Control Conference, pp. 900-907, Kos, Greece, July 2007.
- [C71] **I Shames**, N Najmaei, M Zamani, A A Safavi, “A New Intelligent Traffic Shaper for High Speed Networks”, 18th IEEE International Conference on Tools for Artificial Intelligence, Arlington, VA, USA, 2006
- [C72] B Moghtaderi, **I Shames** and L Djenidi “Application of Micro-PIV Technique in Examining the Mixing Behaviour in a Novel Micro-reactor”, Fourth Australian Conference on Laser Diagnostics in Fluid Mechanics and Combustion, The University of Adelaide, South Australia, Australia, 2005.

Grants, Honors & Awards

2018 – 2021

Protection/resilient control of cyber-physical systems against malicious attacks (G5479-MYP), NATO Science for Peace and Security (SPS) Programme

NATO

2018 – 2020	Motion Planning and Task Allocation of Multiple Decoys for Ship Protection (Postdoc and PhD scholarships) , Defence Science & Technology Group	<i>DSTG</i>
2017 – 2019	Modeling, analysis and design of secure networked control systems (DP170104099) , Australian Research Council	<i>ARC</i>
2017 – 2018	Development of solution methods for coordinating multiple EW decoys for protection of naval task group against multiple threat missiles – with focus on motion planning and task allocation , Defence Science & Technology Group	<i>DSTG</i>
2017 – 2018	Tactical security and health in multi-modal sensor control and management , Defence Science & Technology Group	<i>DSTG</i>
2016 – 2019	Automatic control systems for low-energy pipelines in irrigation networks (LP160100666) , Australian Research Council	<i>ARC</i>
2016 – 2019	Practical model-based control for low emission and low cost diesel engines (LP160100650) , Australian Research Council	<i>ARC</i>
2016 – 2017	Tactical security and health management across intra-vehicle and inter-vehicle systems , Defence Science & Technology Group	<i>DSTG</i>
2015 – 2016	Demonstration of simultaneous localisation and mapping (SLAM) with compact sensors , Defence Science & Technology Group	<i>DSTG</i>
2016	Control engineering for high school students and teachers: an online platform development (IEEE-CSS Outreach Task Force) , Institute of Electrical and Electronic Engineers (IEEE)	<i>IEEE</i>
2013 – 2016	Ensuring security and resilience in critical cyber-physical systems , McKenzie Fellowship, University of Melbourne	<i>UoM</i>
2013	Early Career Researcher Grant , University of Melbourne	<i>UoM</i>
2011 – 2012	ACCESS Linnaeus Postdoctoral Fellowship , KTH Royal Institute of Technology	<i>KTH</i>
2010	Selected as one of the 3 PhD Students from ANU to attend UniLead Leadership Program , The Australian National University	<i>ANU</i>
2010	International Alliance of Research Universities Travel Grant and Selected as 2 of PhD Students from ANU to Attend ANU-KU UniGo exchange program , The Australian National University	<i>ANU</i>
2008, 2010	Vice-Chancellor Travel Grant , The Australian National University	<i>ANU</i>
2008	International Alliance of Research Universities Travel Grant , The Australian National University	<i>ANU</i>
2008	ICE-EM/AMSI Financial Aid , ICE-EM/AMSI	<i>AMSI</i>
2008	Endeavor International Post-Graduate Research Scholarship (EIPRS) , Endeavour Programme	<i>EIPRS</i>
2003 – 2005	Vice Chancellor's Commendation for Academic Performance and Achievement , Shiraz University	<i>ShirazU</i>

Teaching Experience

Department of Electrical and Electronic Engineering, University of Melbourne

Melbourne, Australia

LECTURER AND SUBJECT COORDINATOR

2014 – present

Secure Cyber-physical Systems, ELEN90080

Summer/Autumn 2017

Power Electronics, ELEN90075

Winter/Spring 2015 – 2017

Introduction to Optimisation, ELEN90026

Winter/Spring 2013, 2014, 2016, 2017

School of Electrical Engineering, KTH Royal Institute of Technology

Stockholm, Sweden

CO-LECTURER, GRADUATE COURSE ON NETWORKED AND MULTI-AGENT CONTROL SYSTEMS, EL3330

2011

College of Engineering and Computer Science, The Australian National University

Canberra, Australia

TEACHING ASSISTANT

2014 – present

Engineering System Analysis

2008 – 2010

Control Systems

2009

Digital Signal Processing and Control

2007

Employment

ACADEMIC

University of Melbourne

Senior Lecturer (Assistant Professor)
McKenzie Fellow
Research Fellow

Melbourne, Australia

August 2012 – present

October 2014 – present

January 2013 – January 2016

August 2012 – January 2013

KTH Royal Institute of Technology

POSTDOCTORAL RESEARCHER AT ACCESS LINNAEUS CENTRE

Stockholm, Sweden

February 2011 – August 2012

NON-ACADEMIC

Burgmann College, The Australian National University

ASSISTANT NETWORK ADMINISTRATOR

Canberra, Australia

2008-2009

Foolade Shiraz Ltd.

NETWORKING CONSULTANT

Shiraz, Iran

2004 – 2005

Pourab Co.

NETWORKING CONSULTANT

Shiraz, Iran

2004 – 2005

Professional Activities and Service

June 2018	Co-chair and organiser of the invited sessions “Security & Privacy of Cyber-Physical Systems” (Parts 1 & 2) , American Control Conference (ACC 2018)	Milwaukee, USA
August 2018	Technical Program Committee Member , 7th IFAC Workshop on Distributed Estimation and Control in Networked Systems (NecSys’18)	Groningen, The Netherlands
November 2016	Technical Program Committee Member , 13th International Symposium on Distributed Autonomous Robotic Systems (DARS 2016)	London, UK
September 2016	Technical Program Committee Member , 6th IFAC Workshop on Distributed Estimation and Control in Networked Systems (NecSys’16)	Tokyo, Japan
December 2016	Co-chair and organiser of the invited session “Privacy in Complex Systems” , 54th IEEE Conference on Decision and Control (CDC 2015)	Osaka, Japan
November 2013	Technical Program Committee Member , Australian Control Conference, November 2013	Perth, Australia
November 2013	Technical Program Committee Member , 5th ACM Workshop On Embedded Systems For Energy-Efficiency In Buildings	Rome, Italy
August 2013	Technical Program Committee Member , 1st IEEE International Conference on Cyber-Physical Systems, Networks, and Applications	Taipei, Taiwan
September 2011	Co-chair and organiser of the invited session “New trends in networked systems: estimation, control, and security” , IFAC World Congress	Milan, Italy
January 2010	Co-chair and organiser , Symposium on Advances in Optimization for Distributed Control, Information Fusion and Sensor Network Applications and the Program Committee Member of The Sixth International Conference on Intelligent Sensors, Sensor Networks and Information Processing (ISSNIP)	Brisbane, Australia

Invited Talks

June 2015, September 2016	School of Mechanical and Mining Engineering , University of Queensland	Brisbane, Australia
June 2014, September 2009, March 2010	Department of Automatic Control , KTH – Royal Institute of Technology,	Stockholm, Sweden

July 2012	Automatic Control Lab , ETH	<i>Zürich, Switzerland</i>
February 2012	Department of Electrical and Electronic Engineering , University of Melbourne	<i>Melbourne, Australia</i>
January 2012	School of Electrical Engineering and Computer Science , The University of Newcastle	<i>Newcastle, Australia</i>
October 2011	Gipsa-lab, Systèmes et Commandes en Réseaux, Département Automatique , University of Grenoble	<i>Grenoble, France</i>
September 2011	Delft Center for Systems and Control , Delft University of Technology	<i>Delft, The Netherlands</i>
September 2011	Institute of Automatic Control Engineering (LSR) , Technische Universität München	<i>München, Germany</i>
July 2011	Department of Signals and Systems , Chalmers Institute of Technology	<i>Göteborg, Sweden</i>
June 2008	Department of Information and Physical Sciences , University of Tokyo	<i>Tokyo Japan</i>
January 2007	Intelligent Robot Research Center , Monash University	<i>Melbourne, Australia</i>

Referees

Available upon request.