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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] C Murguia, **I Shames**, J Ruths, D Nešić, “Security Metrics and Synthesis of Secure Control Systems”, to appear in *Automatica*, 2020.
- [J2] J Tran, F Farokhi, M Cantoni, **I Shames**, “Implementing Homomorphic Encryption Based Secure Feedback Control”, to appear in *Control Engineering Practice*, 2020.
- [J3] F Farokhi, **I Shames**, K H Johansson, “Private Routing and Ride Sharing Using Homomorphic Encryption”, to appear in *IET Cyber-Physical Systems: Theory & Applications*, 2020.
- [J4] A Lasage-Landy, **I Shames**, J A Taylor. “Predictive Online Convex Optimization”, to appear in *Automatica*, 2020.
- [J5] A Pavlov, **I Shames**, C Manzie, “Minimax strategy in approximate model predictive control”, to appear in *Automatica*, 2020.
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- [J7] M Yuan, C Manzie, M Good, **I Shames**, L Gan, F Keynejad, T Robinette, “Error-Bounded Reference Tracking MPC for Machines with Structural Flexibility”, to appear in *IEEE Transactions on Industrial Electronics*, 2020.
- [J8] **I Shames**, D Selvaratnam, J Manton, “Online optimisation using zeroth order oracles” to appear in *IEEE Control Systems Letters*, 2020.
- [J9] M Deghat, V Ugrinovskii, **I Shames**, C Langbort, “Detection and Mitigation of Biasing Attacks on Distributed Estimation Networks”, *Automatica* Vol. 99, pp 369-381, 2019.
- [J10] F Farokhi, **I Shames**, M Cantoni, “Optimal Contract Design for Effort-Averse Sensors”, *International Journal of Control*, Vol. 28, pp 1-8 2018
- [J11] M Schulze Darup, A Redder, **I Shames**, F Farokhi, D E Quevedo, “Towards Encrypted MPC for Linear Constrained Systems”, *IEEE Control Systems Letters*, Vol. 2, No. 2, pp 95-200, 2018.
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- [J13] M Cantoni, F Farokhi, E C Kerrigan, **I Shames**, “Structured Computation of Optimal Controls for Constrained Cascade Systems”, *International Journal of Control*, , pp. 1–10, 2017.
- [J14] 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.
- [J15] F Farokhi, **I Shames**, N Batterham, “Secure and Private Control Using Semi-Homomorphic Encryption”, *Control Engineering Practice*, Vol. 67, pp 13 – 20, 2017.
- [J16] 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.
- [J17] **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.
- [J18] 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.
- [J19] 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>]
- [J20] 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,
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- [J28] 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.
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- [J32] J O Swartling, **I Shames**, K H Johansson, D V Dimarogonas, “Collective Circumnavigation”, *Unmanned Systems*, Vol. 2, No. 3 pp. 219 - 229, 2014.
- [J33] 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.
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- [J35] **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.
- [J36] **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.
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- [J49] 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] C Murguia, I Shames, F Farokhi, D Nešić, “Information-Theoretic Privacy Through Chaos Synchronization and Optimal Additive Noise”. In: Farokhi F. (eds) *Privacy in Dynamical Systems*. Springer, Singapore, 2020.
- [B2] 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.
- [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 24, “Polynomial Based Methods for Cooperative Localization in Multiagent Systems”, John Wiley & Sons, 2011.
- [B4] **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] G G Colabufo, P Dower, **I Shames**, “Newton’s method: sufficient conditions for practical and input-to-state stability”, to appear in IFAC World Congress, Berlin, Germany, July 2020.
- [C2] V Renganathan, **I Shames**, T H Summers, “Towards Integrated Perception and Motion Planning with Distributionally Robust Risk Constraints”, to appear in IFAC World Congress, Berlin, Germany, July 2020.
- [C3] M Zamani, **I Shames**, R Hunjet, “Distributed Signal Signature Minimization Via Network Topology Modification”, to appear in IFAC World Congress, Berlin, Germany, July 2020.
- [C4] C Murguia, **I Shames**, F Farokhi, D Nešić, “Privacy Against State Estimation: An Optimization Framework based on the Data Processing Inequality”, to appear in IFAC World Congress, Berlin, Germany, July 2020.
- [C5] M Khoo, T Wood, C Manzie, **I Shames**, “Exploiting Structure in the Bottleneck Assignment Problem”, to appear in IFAC World Congress, Berlin, Germany, July 2020.

- [C6] A Pavlov, M Müller, C Manzie, **I Shames**, “Complexity minimisation of suboptimal MPC without terminal constraints”, to appear in IFAC World Congress, Berlin, Germany, July 2020.
- [C7] R Chin, S I Maass, N Ulapane, C Manzie, **I Shames**, D Nešić, J Rowe, H Nakada, “Active Learning for Linear Parameter-Varying System Identification”, to appear in IFAC World Congress, Berlin, Germany, July 2020.
- [C8] A I Maass, C Manzie, **I Shames**, R Chin, D Nešić, N Ulapane, H Nakada, “Tuning of model predictive engine controllers over transient drive cycles”, to appear in IFAC World Congress, Berlin, Germany, July 2020.
- [C9] Y Lin, **I Shames**, D Nešić, “Asynchronous Distributed Optimization via Dual Decomposition and Block Coordinate Ascent”, in the Proc. of the IEEE Conference on Decision and Control (CDC), Nice, France, Dec. 2019.
- [C10] M Khoo, T Wood, C Manzie, **I Shames**, “Distributed Algorithm for Solving the Bottleneck Assignment Problem”, in the Proc. of the IEEE Conference on Decision and Control (CDC), Nice, France, Dec. 2019.
- [C11] H Nasir, E Weyer, **I Shames**, M Cantoni, “Towards Redundant Constraint Removal in Scenario Approximation of Optimal Control Problems with Multiplicative Model Uncertainty”, in the Proc. of the IEEE Conference on Decision and Control (CDC), Nice, France, Dec. 2019.
- [C12] W Wang, R Postoyan, D Nešić, **I Shames**, W P M H Heemels, “State-Feedback Event-Holding Control for Nonlinear Systems”, in the Proc. of the IEEE Conference on Decision and Control (CDC), Nice, France, Dec. 2019.
- [C13] M Yuan, C Manzie, L Gan, M Good, **I Shames**, “Modelling and Contouring Error Bounded Control of a Biaxial Industrial Gantry Machine”, in Proc. of The 3rd IEEE Conference on Control Technology and Applications (CCTA 2019), Hong Kong, 2019.
- [C14] A Pavlov, **I Shames**, C Manzie, “Enhancing computational efficiency for a class of NMPC solvers”, European Control Conference, Napoli, Italy, June 23 – 25, 2019.
- [C15] E Michael, T Wood, C Manzie, **I Shames**, “Uncertainty Intervals for Robust Bottleneck Assignment”, European Control Conference, Napoli, Italy, June 23 – 25, 2019.
- [C16] Z Ju, **I Shames**, D Nešić, “Communication Connectivity in Multi-agent Systems with Multiple Uncooperative Agents”, Asian Control Conference, Japan, June 09-11, 2019
- [C17] M Yuan, C Manzie, M Good, **I Shames**, F Keynejad, T Robinette, “Bounded Error Tracking Control for Contouring Systems with End Effector Measurements”, in the Proc. 20th IEEE International Conference on Industrial Technology (ICIT 2019), Melbourne, Australia, February 13-15, 2019.
- [C18] 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.
- [C19] 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.
- [C20] C Murguia, **I Shames**, F Farokhi, D Nešić, “On Privacy of Quantized Sensor Measurements through Additive Noise”, in the Proc. of the IEEE Conference on Decision and Control (CDC), Fontainebleau, Miami Beach, FL, USA on Dec. 17-19, 2018.
- [C21] 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.
- [C22] 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.
- [C23] A S Ira, I Shames, C Manzie, R Chin, D Nešić, H Nakada, T Sano, “A Machine Learning Approach for Tuning Model Predictive Controllers”, in the Proc. of the 15th International Conference on Control, Automation, Robotics and Vision (ICARCV), Singapore, November 18 – 21, 2018.
- [C24] 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
- [C25] F Farokhi, **I Shames**, “Compressive Sensing in Fault Detection”, in the Proc. of the American Control Conference, Milwaukee, WI, USA, June 2018
- [C26] **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
- [C27] 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
- [C28] 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.
- [C29] **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.
- [C30] 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.
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- [C33] 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.
- [C34] 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.
- [C35] 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.
- [C36] 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.
- [C37] 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.
- [C38] Y Zhu, **I Shames**, C Manzie, “Stability Analysis for Distributed Perimeter Controlled Traffic Networks” to appear in the American Control Conference, Boston MA, July, 2016.

- [C39] **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.
- [C40] F Farokhi, M Cantoni, **I Shames**, “Scheduling Rigid Demands on Continuous-Time Linear Shift-Invariant Systems,” In Proc. of the 54th IEEE Conference on Decision and Control (CDC 2015), Osaka, Japan, Dec., 2015.
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- [C42] 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
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- [C46] **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.
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- [C50] 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.
- [C51] 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.
- [C52] 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.
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- [C60] 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.
- [C61] 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.
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- [C65] **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.
- [C66] **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.
- [C67] **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.
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- [C70] **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.
- [C71] E Ghadimi, M Johansson, **I Shames**, “Accelerated Gradient Methods for Networked Optimization”, Proc. American Control Conference, pp 1668-1673, San Fransisco, CA, June-July, 2011.
- [C72] 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.
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- [C74] **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.
- [C75] 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.
- [C76] 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.
- [C77] **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
- [C78] **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.
- [C79] **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.
- [C80] **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.
- [C81] 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.
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- [C83] **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.
- [C84] G Piovan, **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.
- [C85] **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.
- [C86] **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.
- [C87] **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.
- [C88] **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.
- [C89] 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.
- [C90] **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
- [C91] 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

*University of Melbourne,  
School of Electrical,  
Mechanical, and  
Infrastructure  
Engineering*

2019	<b>School of EMI Emerging Leader Award</b> , UniMelb, EMI	
2020 – 2022	<b>Co-design and dynamic mission optimisation of hypersonic flight vehicles</b> , Australian Research Council and BAE Systems	<i>ARC - BAES</i>
2019 – 2022	<b>NEURO-AUTONOMY: PERCEPTION, NAVIGATION AND SPATIAL AWARENESS FOR AUTONOMOUS ROBOTS (AUSMURI - Australia) US Defense Multidisciplinary University Research Initiative Program</b> , DEPARTMENT OF INDUSTRY, INNOVATION AND SCIENCE	<i>AUSMURI</i>
2019 – 2020	<b>Verifiable Hierarchical Sensing, Planning and Control</b> , AFOSR – Defence Science & Technology Group	<i>AFOSR-DSTG</i>
2019 - 2021	<b>Trusted Scalable Effect Delivery by Expendable, Autonomous Swarms (G5479-MYP)</b> , Trusted Autonomous Systems Defence CRC	<i>D-CRC</i>
2019 – 2021	<b>Protection/resilient control of cyber-physical systems against malicious attacks (G5479-MYP)</b> , NATO Science for Peace and Security (SPS) Programme	<i>NATO</i>

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

## Teaching Experience

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### 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 – 2018

Introduction to Optimisation, ELEN90026

Winter/Spring 2013, 2014, 2016 – 2019

Embedded Systems Design, ELEN90066

Summer/Autumn 2020

### 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

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## ACADEMIC

### University of Melbourne

Associate Professor and Control and Signal Processing Group Leader  
Senior Lecturer (Assistant Professor)  
McKenzie Fellow  
Research Fellow

*Melbourne, Australia*  
August 2012 – present  
January 2020 – present  
October 2014 – December 2019  
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

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January 2020 –  
present

**Editorial Board Member**, Automatica

July 2019 –  
present

**Editorial Board Member**, IEEE Transactions on Control of Networked Systems

November 2018  
– present

**Editorial Board Member**, Control Engineering Practice

September 2018  
– present

**Editorial Board Member**, Control Theory and Application

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

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June 2015, September 2016	<b>School of Mechanical and Mining Engineering</b> , University of Queensland	<i>Brisbane, Australia</i>
June 2014, September 2009, March 2010	<b>Department of Automatic Control</b> , KTH – Royal Institute of Technology,	<i>Stockholm, Sweden</i>
July 2012	<b>Automatic Control Lab</b> , ETH	<i>Zürich, Switzerland</i>
February 2012	<b>Department of Electrical and Electronic Engineering</b> , University of Melbourne	<i>Melbourne, Australia</i>
January 2012	<b>School of Electrical Engineering and Computer Science</b> , The University of Newcastle	<i>Newcastle, Australia</i>
October 2011	<b>Gipsa-lab, Systèmes et Commandes en Réseaux, Département Automatique</b> , University of Grenoble	<i>Grenoble, France</i>
September 2011	<b>Delft Center for Systems and Control</b> , Delft University of Technology	<i>Delft, The Netherlands</i>
September 2011	<b>Institute of Automatic Control Engineering (LSR)</b> , Technische Universität München	<i>München, Germany</i>
July 2011	<b>Department of Signals and Systems</b> , Chalmers Institute of Technology	<i>Göteborg, Sweden</i>
June 2008	<b>Department of Information and Physical Sciences</b> , University of Tokyo	<i>Tokyo Japan</i>
January 2007	<b>Intelligent Robot Research Center</b> , Monash University	<i>Melbourne, Australia</i>

## Referees

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Available upon request.