

Iman Shames

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RESEARCH INTERESTS Multi-agent Systems, Motion Control, Optimization, Mathematical System Theory

EDUCATION **The Australian National University**, Canberra, Australia, **February 2007 - Present**

NICTA-endorsed PhD candidate

- Project Topic:
 - Coordination and Control of Autonomous Agent Formations
- Supervisors:
 - Prof. Brian D O Anderson
 - Dr. Barış Fidan

Shiraz University, Shiraz, Iran, **September 2002 - September 2006**

BSc. Electrical and Electronics Engineering, GPA 17.21/20

HONOURS AND AWARDS

- Vice-Chancellor Travel Grant, 2009
- Shortlisted for Best Poster Prize (judged by a panel), and Audience Favourite Prize in ANU Research Fest, 2009
- International Alliance of Research Universities Travel Grant, 2008
- Vice-Chancellor Travel Grant, 2008
- ICE-EM/AMSI Financial Aid, 2008
- Third Place, University Students Research Competition, Iran, 2007
- Endeavor International Post-Graduate Research Scholarship (EIPRS), 2007-2011
- ANU-NICTA Stipend Scholarship, 2007-2011
- ANU-NICTA Supplementary Scholarship, 2007-2011
- Visiting Scholarship, School of Engineering (Chemical Engineering), The University of Newcastle, Australia, 2005
- Commendation for Academic Performance and Achievement, Shiraz University, 2003-2005.

ACADEMIC AND RESEARCH VISITS

- Department of Automatic Control, KTH, September 2009.
- Department of Information and Physical Sciences, University of Tokyo, June 2008.
- Intelligent Robot Research Center, Monash University, January, 2007.
- Department of Chemical Engineering, The University of Newcastle, Australia, July- September 2005.

PUBLICATIONS Journal Papers

1. **I Shames**, B Fidan, B D O Anderson, “Minimization of the Effect of Noisy Measurements on Localization of Multi-Agent Autonomous Formations”, *Automatica*, Vol. 45, Issue 4, pp 1058-1065, 2009.
2. **I Shames**, B Fidan, B D O Anderson, H Hmam, “Cooperative Self-localization of Mobile Agents Moving in Planar Formations”, Conditionally Accepted in *IEEE Trans. Robotics*, 2009.

3. **I Shames**, B D O Anderson, X Wang, B Fidan “Enhancing Synchronizability in Networks Via Convex Optimization”, Submitted to IEEE Trans. Circuits and Systems I, 2009.
4. B D O Anderson, **I Shames**, G Mao, B Fidan, “Formal Theory of Noisy Sensor Network Localization” Submitted to SIAM Journal of Computing, 2009.
5. **I Shames**, A A Safavi, N Najmaei, M Zamani, “A New Adaptive and Intelligent Traffic Shaper for High Speed Networks,” Iranian Journal of Information Science and Technology, Vol. 5, No. 1, pp 67-82, 2007
6. B Moghtaderi, **I Shames**, E Doroodchi ”Combustion Prevention of Iron Powders by a Novel Coating Method” Chemical Engineering & Technology, Vol. 29, Issue 1, pp 97-103, 2006.
7. 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, Issue 6, pp 1069-1077, 2006.

Conference Papers

1. **I Shames**, B D O Anderson, B Fidan, “On the Use of Convex Optimization in Sensor Network Localization and Synchronization”, In Procideengs of NecSys09
2. **I Shames**, P T Bibalan, B Fidan , B D O Anderson, , “Polynomial Methods in Noisy Localization”, In Procideengs of MED09
3. **I Shames**, S Dasgupta, B Fidan, B D O Anderson, Circumnavigation Using Distance Measurements”, In Procideengs of ECC09
4. **I Shames**, B D O Anderson, X Wang, B Fidan, “Network Synchronizability Enhancement Using Convex Optimization”, In Procideengs of ECC09
5. R. Soukieh, **I Shames**, B. Fidan , “Obstacle Avoidance of Non-holonomic Unicycle Robots Based, on Fluid Mechanical Modeling”, To appear in ECC09
6. R. Soukieh, **I Shames**, B. Fidan , “Obstacle Avoidance of Robotic Formations Based on Fluid Mechanical Modeling”, In Procideengs of ECC09
7. 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.
8. **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.
9. **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.
10. **I Shames**, B Fidan, B D O Anderson, H Hmam, “Self-localization of Mobile Agents in the Plane”, in TIEEE Int. Symposium on Wireless Pervasive Computing, pp. 116-120, Santorini, Greece, May 2008.
11. **I Shames**, C Yu, B Fidan, B D O Anderson, “Externally Excited Coordination of Autonomous Formations”, in TProc. 15th Mediterranean Conference on Control and Automation, Athens, Greece, June 2007.
12. C Yu, B Fidan, **I Shames**, S Sandeep, B D O Anderson, “Collision Free Coordination of Autonomous Multiagent System”, in TProc. European Control Conference, pp. 900-907, Kos, Greece, July 2007.
13. **I Shames**, N Najmaei, M Zamani, A A Safavi, “Application of Reinforcement Learning in Development of a Traffic Shaper for High Speed Networks”, 5th IEEE International Conference on Machine Learning and Applications, Orlando, USA, 2006
14. **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

15. **I Shames**, A Amirsadri, F Shabaninia “A New Fuzzy Obstacle Avoidance Method Based on Artificial Potential Field for Mobile Robots”, International Conference on Computer & Communication Engineering, Kuala Lumpur, Malaysia, 2006
16. 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.

Technical Reports

1. G Piovan, **I Shames**, B Fidan, F Bullo, and B. D. O. Anderson. On frame and orientation localization for relative sensing networks. Technical report CCDC-08-0905, Center for Control, Dynamical Systems and Computation. University of California at Santa Barbara, 2008. Note: Available electronically at <http://ccdc.mee.ucsb.edu>.
2. N Najmaei, M Zamani, **I Shames**, A A Safavi, An Object Oriented Approach to Simulation of High Speed Networks, Technical Report, Department of Electrical Engineering, Shiraz University, 2006

PAPERS IN PREPARATION

Journal Paper Drafts

1. **I Shames**, B Fidan, B D O Anderson, “Formation Motion Control and Obstacle Avoidance”, In Preparation
2. **I Shames**, B Fidan, B D O Anderson, “Close Target Reconnaissance Using Small Groups of UAVs”, In Preparation
3. **I Shames**, S Dasgupta, B Fidan, B D O Anderson, “Circumnavigation of Target Undergoing A Persistent Drift”, In Preparation
4. **I Shames**, B Fidan, C Yu, B D O Anderson, “Formation Cohesive Motion Control with Obstacle Avoidance”, In Preparation

TEACHING EXPERIENCE

The Australian National University

- Teaching Assistant, Control Systems, College of Engineering and Computer Sciences, 2009
- Teaching Assistant, Engineering System Analysis, College of Engineering and Computer Sciences, 2009
- Teaching Assistant, Engineering System Analysis, College of Engineering and Computer Sciences, 2008
- Teaching Assistant, Digital Signal Processing and Control, College of Engineering and Computer Sciences, 2007

Shiraz University

- Teaching Assistant, Electronics II, School of Engineering, 2003-2006.
- Visual basic Instructor, Kharazmi Computer Centre, Iran 2002-2003.

EMPLOYMENT

- Assistant Network Administrator, Burgmann College, The Australian National University, 2008-present
- Research and Development Engineer, Shiraz Kahroba Pty. Ltd., Iran, 2005-2006.
- Part-Time Computer Administrator, Shiraz Kahroba Pty. Ltd., Iran, 2004-2005.
- Networking Consultant, Foolade Shiraz Ltd., Iran, 2004-2005
- Networking Consultant, Pourab Co., 2004-2005.

OTHER
PROFESSIONAL
ACTIVITIES

Talks

- Systems and Control Group, School of Engineering, The Australian National University, May 2009.
- Burgmann College Forum, The Australian National University, April 2009.
- Presentation of Paper in IFAC World Congress 2008
- Department of Information and Physical Sciences, University of Tokyo, June 2008.
- Burgmann College Forum, The Australian National University, November 2008.
- Intelligent Robot Research Center, Monash University, January 2007

Chairing Conference Session

- Session on Obstacle Avoidance in European Control Conference , Budapest, Hungary, 2009

Review of Scholarly Materials

- IEEE transactions on Circuits and Systems I, 2009
- IET Control Theory & Applications, 2009
- European Control Conference 09, 2009
- IFAC World Congress 08, 2007
- International Journal of Control , 2007
- Automatica, 2007

Organization of Technical Meetings

- A Workshop on Artificial Intelligence, Ehsan Research Center, 2004

PROFESSIONAL
MEMBERSHIPS

- SIAM, 2008-present.
- IEEE Student Member, 2007-present.
- Shiraz University Robotics Centre, 2003-2006.
- Shiraz University Robocup Team, SU-Spada, 2002-2006

REFEREES

Prof. Brian D O Anderson
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