

EUHANNA GHADIMI

CONTACT INFORMATION

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RESEARCH INTERESTS

Convex optimization, machine learning, wireless networks, real-time sensor networking, optimization for large scale communication and control systems.

EDUCATION

- 10/2009 – current: *Ph.D. candidate* with prof. Mikael Johansson, KTH, Automatic Control Department, Stockholm, Sweden. focus: “Distributed optimization of networks and systems”.
- 09/2005 – 09/2008: *M.s. degree in Computer Engineering*, University of Tehran, Tehran, Iran. advisor: prof. Nasser Yazdani. master’s thesis: “Routing and link layer analysis in wireless networks with constraints”;
- 09/2001–09/2005: *B.s. degree in Software Engineering*, Iran University of Science and Technology (IUST), Tehran, Iran. advisor: prof. Mohsen Sharifi. bachelor’s thesis: “Design and implementation of a web-based database report generator”;
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EXPERIENCES

- 04/2011 – 05/2011 *Visiting scholar* at TRUST center (Prof. Shankar Sastry’s lab), UC Berkeley;
- 08/2006 – 12/2006: *Project manager and software designer* at Sharif advanced technology incubator (www.sati.ir), Sharif University, Tehran, Iran. (project: i. Design and development of remote access to clinical records using PDA and Windows mobile over Tcp-IP protocol, ii. Design and implementation of web service based GIS systems for tracking transit trucks);
- 10/2005 – 05/2006: *Software engineer* at Armitis Software Company, Tehran, Iran. (project: Developing web portals using ASP.Net platform);
- 09/2004 – 09/2005: *Software engineer* at Kyannour Rayaneh Company, Tehran, Iran. (project: Developing POS (point of sale) systems for retail stores);
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TECHNICAL SKILLS

During my working experiences I have gained the following skills and I am able to fulfill the projects in these areas:

- design and implementation of PC and web based softwares with data bases (c, c++, c#, Java, Python, web services, ASP.net, windows CE, SQL server);
 - design and implementation of large-scale optimization problems (using Matlab, Julia, cvxgen for embedded systems);
 - programming the wireless sensor networks (TinyOS, Contiki);
 - programming communication protocols (NS simulator, serial port, TCP/IP);
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TEACHING SKILLS

During my studies I have been involved in teaching and supervising students and earned experience by collaborating with talented individuals. A summary of my teaching activities are as follows.

- Supervising the project: Development of a Matlab toolbox for "Distributed Model Predictive Control" with supporting different state-of-the-art optimization techniques such as dual-decomposition based multi-step gradient method, Nesterov's accelerated method and ADMM algorithm. Oliver Gäfvert, 2014 KTH;
- Teaching assistant for the M.s. level course "Principles of Wireless Sensor Networks" for two course rounds in 2012, 2013 at KTH. The activity consisted of preparing the course materials for the first time together with prof. Carlo Fischione in 2011. The course covers broad areas from programming to routing, estimation and detection techniques specialized for sensor network applications;
- supervising B.s. degree project: "Movement Detection and Tracking using Wireless Camera Networks". The project involved image processing techniques and embedded sensor programming. Emil Ringh and Martin Larsson, 2011, KTH;

PUBLICATIONS

Journal Publications:

- J1: E. Ghadimi, H. R. Feyzmahdavian, M. Johansson "Global convergence of the heavy-ball method for convex optimization", Submitted to Mathematical Programming, 2014.
- J2: A. Teixeira, E. Ghadimi, I. Shames, H. Sandberg, M. Johansson "Optimal scaling of the ADMM algorithm for distributed quadratic programming", Submitted to IEEE Transactions on Signal Processing, 2014.
- J3: E. Ghadimi, A. Teixeira, I. Shames, M. Johansson "Optimal parameter selection for the alternating direction method of multipliers (ADMM): quadratic problems", To appear in IEEE Transactions on Automatic Control, 2015.
- J4: E. Ghadimi, O. Landsiedel, P. Soldati, S. Duquenooy, M. Johansson "Opportunistic routing in low duty-cycled wireless sensor networks", ACM Transactions on Sensor Networks, 2014.
- J5: E. Ghadimi, I. Shames, M. Johansson "Multi-step gradient methods for networked optimization", IEEE Transactions on Signal Processing, 2013.
- J6: E. Ghadimi, A. Khonsari, A. Diyanat, M. Farmani, N. Yazdani "An analytical model of delay in multi-hop wireless ad hoc networks". ACM Wireless Networks Journal vol. 17, no. 7, pp. 1679-1697, 2011.
- J7: M. H. Chehreghani, C. Lucas, M. Rahgozar, E. Ghadimi "Efficient rule based structural algorithms for classification of tree structured data", Intelligent Data Analysis, 2009.

Conference Publications:

- C1: E. Ghadimi, H. R. Feyzmahdavian, M. Johansson "Global convergence of the heavy-ball method for convex optimization", Submitted to European Control Conference, 2014.
- C2: E. Ghadimi, A. Teixeira, M. Rabbat, M. Johansson "The ADMM algorithm for distributed averaging: Convergence rates and optimal parameter selection", In Proceedings of the 48th Asilomar Conference on Signals, Systems and Computers, 2014.
- C3: A. Teixeira, E. Ghadimi, I. Shames, H. Sandberg, M. Johansson "Optimal scaling of the ADMM algorithm for distributed quadratic programming", In CDC'13: IEEE Conference on Decision and Control, 2013.
- C4: E. Ghadimi, A. Teixeira, I. Shames, M. Johansson "On the optimal step-size selection for the alternating direction method of multipliers", In Necsys'12: Necsys2012: Proceeding of IFAC Workshop on Estimation and Control of Networked Systems, 2012.
- C5: E. Ghadimi, O. Landsiedel, P. Soldati, M. Johansson "A metric for opportunistic routing in duty cycled wireless sensor networks". In SECON'12: Proceedings of the 9th IEEE Conference on Sensor, Mesh and Ad Hoc Communications and Networks, 2012.
- C6: O. Landsiedel, E. Ghadimi, S. Duquenooy, M. Johansson "Low power, low delay: opportunistic routing meets duty cycling". In IPSN'12: Proceedings of the 11th ACM/IEEE International Conference on Information Processing in Sensor Networks, 2012.
- C7: E. Ghadimi, P. Soldati, F. Österlind, H. Zhang, M. Johansson "Hidden terminal-aware contention resolution with an optimal distribution". In MASS'11: Proceedings of the 8th IEEE International Conference on Mobile Ad-hoc and Sensor Systems, 2011.
- C8: E. Ghadimi, M. Johansson, I. Shames "Accelerated gradient methods for networked optimization", In ACC'11: Proceedings of American Control Conference, 2011.

- C9: E. Ghadimi, A. Khonsari, M. S. Talebi, N. Yazdani "Loss aware geographic routing for unreliable wireless sensor networks". CCNC'09: Proceedings of IEEE conference on Consumer Communication, 2009.
- C10: E. Ghadimi, N. Yazdani, A. Khonsari "GWRR: greedy weighted region routing in wireless sensor networks". In ICPADS'08: Proceeding of 14th IEEE Conference on Parallel and Distributed Systems, 2008.
- C11: E. Ghadimi, N. Yazdani, A. Safilian "Geographic routing in presence of the loss in wireless sensor networks". IST'08: Proceeding of 4th International Symposium of Telecommunication, 2008.
- C12: A. Abbasi, E. Ghadimi, N. Yazdani, M. Ould-Khaoua "A distributed clustering algorithm for fault-tolerant event region detection in wireless sensor networks". ISPA'07: Frontiers of High Performance Computing and Networking ISPA, 2007.

REFERENCES

- Prof. Mikael Johansson, Automatic control department, KTH, royal institute of technology, osquidas vag 10, 100 44, Stockholm, Sweden. Phone: +46-8-7907436, e-mail: mikaelj@kth.se;
- Associate Prof. Carlo Fischione, Automatic control department, KTH, royal institute of technology, osquidas vag 10, 100 44, Stockholm, Sweden. Phone: +46-8-7907424, e-mail: carlofi@kth.se;
- Dr. Pablo Soldati Senior Researcher, Huawei Technologies Co. Ltd. Stockholm, Sweden. Phone: +46-7-39208031, e-mail: pablo.soldati@huawei.com;