

Esmail Atashpaz-Gargari

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OBJECTIVE Placement in a faculty/industry position that allows for advanced research in genomic signal processing, pattern recognition, image processing, computer vision and artificial intelligence

RESEARCH INTERESTS Pattern recognition, classification, clustering, classifier error estimation, genomic signal processing, systems biology, estimation, optimization, image processing and computer vision, artificial intelligence.

EDUCATION **2009 - present**

Ph.D. candidate, Department of Electrical and Computer Engineering, Texas A&M University, expected graduation date: December 2013.

- Adviser: Dr. Edward R. Dougherty and Dr. Ulisses Braga-Neto.
- Area of Study: Genomic Signal Processing.

September 2005 - September 2008

M.S., Control and Intelligent Processing Center of Excellence, Department of Electrical and Computer Engineering, University of Tehran

- Distinguished Student of Electrical Engineering, University of Tehran, June 2007.
- Thesis Topic: *Developing a socially-inspired optimization algorithm.*
- Adviser: Dr. Caro Lucas and Dr. Babak N. Araabi.
- Area of Study: Control Systems and Intelligent Processing.

September 2001 - September 2005

B.S., Department of Electrical and Computer Engineering, University of Tabriz

- Ranked 10th in the 10th National Scientific Olympiad for Undergraduate Students in Electrical Engineering, 2005.
- Thesis Topic: *Design and Implementation of Voltage Control and Monitoring System.*
- Adviser: Dr. Caro Lucas and Dr. Babak N. Araabi.
- Major: Electronics.

CITATION INDICES

September 2012

- h-index: 9
- g-index: 19
- i10-index: 9

AWARDS AND HONORS

- Developing *Imperialist Competitive Algorithm (ICA)*.

Since its inception, this algorithm is used to solve many optimization problems in different areas of science, engineering and technology. The first paper about this algorithm is among the highly cited papers in the field. More information about this algorithm is available in ICA's Wiki Page.

- Selected and Awarded as the Electrical Engineering Distinguished Student of University of Tehran, June 2007.
- Ranked 10th in the 10th National Scientific Olympiad for University Students in Electrical Engineering, 2005.
- Ranked 23th among more than 15000 EE students in the University Entrance National Exam for M.Sc. Degree, 2005.

PATENTS

- Esmail Atashpaz-Gargari, “OPTIMICA - A general purpose optimization tool based on ICA” 2009, (*Iran Patent Office, Registration Number: 94478*).
- Behrooz Abdi, Esmail Atashpaz-Gargari and Marziye Ayougi “Intelligent Keypad for Mobile Phone.” in 2006, (*Iran Patent Office, Registration Number: 81345*)
- Esmail Atashpaz-Gargari, et al., “OBGENE - Optimal Barcode Generator for Next-Gen sequencing” *to be filed soon for review in the US patent office.*

PUBLICATIONS

Journal Publications

- A. Clavijo, A. Nikooienejad, M. Shahrokh, R. P. Metz, S. Schwartz, E. Atashpaz-Gargari, et al. , “Identification and Analysis of the First 2009 Pandemic H1N1 Influenza Virus from U.S. Feral Swine.” to appear in *Zoonoses and Public Health*, 2012.
- S Nazari-Shirkouhi, H Eivazy, R Ghodsi, K Rezaie, E Atashpaz-Gargari, “Solving the integrated product mix-outsourcing problem using the Imperialist Competitive Algorithm.” *Expert Systems with Applications*, 37 (12), 7615-7626.
- E Atashpaz-Gargari, R Rajabioun, F Hashemzadeh, FR Salmasi, “A Decentralized PID Controller based on Optimal Shrinkage of Gershgorin Bands and PID Tuning using Colonial Competitive Algorithm.” *International Journal of Innovative Computing, Information and Control*, Volume 5, Issue 10, Pages 3227-3240.
- E Atashpaz-Gargari, F Hashemzadeh, R Rajabioun, C Lucas, “Colonial competitive algorithm: a novel approach for PID controller design in MIMO distillation column process.” *International Journal of Intelligent Computing and Cybernetics*, 1 (3), 337-355.
- A Biabangard-Oskouyi, E Atashpaz-Gargari, N Soltani, C Lucas, “Application of Imperialist Competitive Algorithm for materials property characterization from sharp indentation test.” *International Journal of Engineering Simulation*, 1 (1).
- A Khabbazi, E Atashpaz-Gargari, C Lucas, “Imperialist competitive algorithm for minimum bit error rate beamforming.” *International Journal of Bio-Inspired Computation*, 1 (1), 125-133.

Books

- Esmail Atashpaz Gargari, et al., “Solution Manual for Electrical Engineering National Entrance Examination Problems for Graduate Program.” in 2008, *Pardazeshgaran Publication, Tehran, Iran*, ISBN: 978-964-8628-89-0.
- B. Abdi, M. Keshavarzmehr and Esmail. Atashpaz-Gargari, “MATLAB Programming for Engineers” (translation into Farsi). 2007, *Nopardazan publication, Tehran, Iran*, ISBN: 964-8142-95-5.

Refereed Conference Publications

- A. Clavijo, A. Nikooinnejad, M. Shahrokh, R. P. Metz, S. Schwartz, E. Atashpaz-Gargari, et al. , “Identification of Pandemic H1N1 Influenza Virus in Feral Swine.” *2012 AAVLD/USAHA Annual Meeting in Greensboro, NC*,
- Esmail Atashpaz-Gargari, Chao Sima, Ulisses M Braga-Neto, Edward R Dougherty, “Relationship between the accuracy of classifier error estimation and distribution complexity.” *Genomic Signal Processing and Statistics (GENSIPS), 2011 IEEE International Workshop on*, Pages 147-149
- Esmail Atashpaz-Gargari, Ulisses M Braga-Neto, Edward R Dougherty, “Multiple reaction monitoring: Modeling and systematic analysis.” in *Genomic Signal Processing and Statistics (GENSIPS), 2011 IEEE International Workshop on*, Pages 105-107.
- Esmail Atashpaz-Gargari, Caro Lucas, “Imperialist competitive algorithm: an algorithm for optimization inspired by imperialistic competition.” in *Evolutionary Computation, 2007. CEC 2007. IEEE Congress on*, 4661-4667.
- R Rajabioun, F Hashemzadeh, E Atashpaz-Gargari, B Mesgari, F Rajaei Salmasi, “Identification of a MIMO evaporator and its decentralized PID controller tuning using Colonial Competitive Algorithm.” in *IFAC World Congress, 2008/7*.
- Ashkan M Jasour, E Atashpaz-Gargari, Caro Lucas, “Vehicle fuzzy controller design using imperialist competitive algorithm.” in *Second First Iranian Joint Congress on Fuzzy and Intelligent Systems, Tehran, Iran, 2008*.
- Esmail Atashpaz-Gargari, Farzad Hashemzadeh, Caro Lucas, “Designing MIMO PIID controller using colonial competitive algorithm: applied to distillation column process.” in *Evolutionary Computation, 2008. CEC 2008. (IEEE World Congress on Computational Intelligence). IEEE Congress on*, 1929-1934.
- Mahnaz Roshanaei, Esmail Atashpaz-Gargari, Caro Lucas, “Adaptive beamforming using colonial competitive algorithm.” in *Proceedings of the Second International Joint Conference on Computational Engineering, Vancouver, Canada, 2008*.
- Esmail Atashpaz-Gargari, Caro Lucas, “Designing an optimal PID controller using Colonial Competitive Algorithm.” in *Proceedings of the First Iranian Joint Congress on Fuzzy and Intelligent Systems, Mashhad, Iran, 2007*.
- Ramin Rajabioun, Farzad Hashemzadeh, Esmail Atashpaz-Gargari, Bahman Mesgari, Farzad R Salmasi, “Decentralized PID Controller Design for a MIMO Evaporator Based on Colonial Competitive Algorithm.” in *Proceedings of the 17th World Congress The International Federation of Automatic Control*, Volume 17, Issue 1, Pages 9952-9957.
- Esmail Aatashpaz-Gargari, Babak N Araabi, Caro Lucas, “Optimal fuzzy passing strategy for robot soccer players.” in *Fuzzy Systems, 2008. FUZZ-IEEE 2008. (IEEE World Congress on Computational Intelligence). IEEE International Conference on*, Pages 1576-1581.
- Esmail Aatashpaz-Gargari, Babak N Araabi, “Line and Circle Detection in Complex Images through Conformal Transformation” in *Proceeding of Machine Vision and Image Processing, Mashhad, Iran, 2005). IEEE International Conference on*, Pages 1576-1581.
- Esmail Atashpaz-Gargari, Caro Lucas, “Designing an optimal PID controller using Imperialist Competitive Algorithm.” in *First Joint Congress on Fuzzy and Intelligent Systems, 2007, Tehran, Iran*.
- Esmail Aatashpaz-Gargari, “Hiding Secret Messages in Images, Steganography.” in *9th Iranian Student Conference on Electrical Engineering (ISCEE 2006), Best Paper Award*.

WORK
EXPERIENCE

Danesh Artan Sahand - DAS Education Technology, Tehran, Iran

Co-founder and CEO

2007-2009

- This startup company provides the graduate students with high quality education in the area of Artificial Intelligence.
- More than 10,000 graduate students has enrolled in different classes offered.

Texas A&M Agrilife Genomics & Bioinformatics Services - TxGen

Bioinformatics analyst

2011-present

- Next Generation Sequencing using Illumina HiSeq, MiSeq, GAIIx, and Roche 454 GS FLX+ systems.
- Bioinformatics Analysis and Processing
- Statistical Analysis and Consulting

Motor Development Lab, Texas A&M University

Programmer

Spring 2010

- Designing graphical interface for an experiment on children's visual processing of egocentric cues in action planning for reach

SERVICE

- Reviewer for more than 10 journals including *Applied Soft Computing*, *International Journal of Computer Mathematics*, *IET Generation, Transmission and Distribution*, *Mathematical and Computer Modelling*, *Journal of Experimental and Theoretical Artificial Intelligence*. [since 2009]
- Program committee member of 6th Iranian Student Conference on Electrical Engineering [2002-2003]
- General Chair of 1st Iranian Student Web-Conference on Evolutionary Computation [2009]

MEMBERSHIPS

- IEEE Student Member, 2005–present.
- National Council of Exceptional Talents, Iran, 2007-present.
- Member of IIA (Iranian Inventors Association), 2006-present.

COMPUTER
SKILLS

Python, R, C, C++, MPI, MATLAB, L^AT_EX, B_IB_TE_X.