Ehsan Hosseini-Asl

Personal Data

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Education

2012-Current PhD in Electrical and Computer Engineering
University of Louisville, USA
Major: Machine Learning | GPA: 4/4
Advisor: Prof. Jacek M. Zurada
co-Advisor: Prof. Ayman El-Baz

2005-2008 Master of Science in Electrical Engineering
Petroleum University of Technology, Iran
Thesis: "Modeling and Control of Nonlinear Dynamic Systems Using Wavelet Neural Network Based on Sampling Theory"
Advisor: Prof. Mehdi Shahbazian | GPA: 17.01/20
co-Advisor: Prof. Karim Salahshoor

2001-2005 Bachelor of Science in Electrical Engineering
Sahand University of Technology, Iran
Thesis: "Multi-Process Control System- Installation and Running
Advisor: Dr. Reza Banaei Khosrowshahi | GPA: 16.78/20

Honors and Awards

2016 The Best and Outstanding PhD Dissertation Award (John M. Houchens Prize)
School of Interdisciplinary and Graduate Studies, University of Louisville

2016 Graduate Dean's Citation
School of Interdisciplinary and Graduate Studies, University of Louisville

2015 Graduate Student Research grant from IEEE Computational Intelligence Society,
"Part-based Representation of Data In Deep Learning Models",
Advisor: Yoshua Bengio

2012-2014 Fellowship for graduate students with an outstanding curriculum ($ 44,000)

2006-2008 Scholarship for graduate students with an outstanding curriculum
from National Iranian Oil Company

2005 Ranked 6 in nation-wide entrance exam for graduate education in
Iranian universities

2005 Second Rank among all the graduated BSc. students in control group

Publications

[1] E. Hosseini-Asl, J. M. Zurada, "Structured Sparse Convolutional Autoencoder", in preparation for submission to Pattern Analysis and Machine Intelligence, IEEE Transactions on.

[2] E. Hosseini-Asl, J. M. Zurada, G. Gimel'farb, and A. El-Baz, "Alzheimer's Disease Diagnostics by a Deeply Supervised Adaptable 3D Convolutional Network", submitted to Medical Imaging, IEEE Transactions on.

[3] E. Hosseini-Asl, and A. Guha, "Similarity-based Text Recognition By Deeply-Supervised Siamese Network, arXiv:1511.04397 [cs.CV], 2015.

[4] E. Hosseini-Asl, R. Keynton, and A. El-Baz, "Alzheimer's Disease Diagnosis by Adaptation of 3D Convolutional Network", submitted to Image Processing (ICIP), 2016 IEEE Int. Conference on, Phoenix, Arizona, USA, September 25-28, 2016.

[5] A. ElTanboly, M. Ismail, A. Shalaby, A. Switala, E. Hosseini-Asl, M. Mahmoud, M. El-Azab, S. Schaal, A. El-Baz, "A New CAD System for Early Detection of Diabetic Retinopathy Using OCT Images", submitted to Medical Image Computing & Computer Assisted Intervention, (MICCAI), 2016.

[6] M. Ismail, M. Nitzken, A. E. Switala, E. Hosseini-Asl, M. Mahmoud, A. Shalaby, M. Casanova, A. El-Baz, "A New CAD System for Early Diagnosis of Autism Using Structural MRI", submitted to Medical Image Computing & Computer Assisted Intervention, (MICCAI), 2016.

[7] B., Ayinde, E. Hosseini-Asl, J. M. Zurada, "Visualizing and Understanding Nonnegativity Constrained Sparse Autoencoder in Deep Architecture", submitted to International Conference on Artificial Intelligence and Soft Computing (ICAISC), 2016.

[8] I. Reda, A. Shalaby, M. Abou El-Ghar, F. Khalifa, M. Elmogy, A. Aboulfotouh, E. Hosseini-Asl, A. El-Baz, and R. Keynton, "A New NMF-Autoencoder Based CAD System For Early Diagnosis of Prostate Cancer", in Biomedical Imaging (ISBI), 2016 IEEE Int. Symposium on, 2016 (accepted).

[9] E. Hosseini-Asl, J. M. Zurada, O. Nasraoui, "Deep Learning of Part-based Representation of Data Using Sparse Autoencoders with Nonnegativity Constraints", Neural Networks and Learning Systems, IEEE Trans. on, vol.PP, no.99, pp.1-13, 2015.

[10] E. Hosseini-Asl, J. M. Zurada, Georgy Gimel'farb, and A. El-Baz, "3D Lung Segmentation Using Incremental Constrained Nonnegative Matrix Factorization," Biomedical Engineering, IEEE Trans. on, vol.PP, no.99, pp.1-1, 2015.

[11] E. Hosseini-Asl, and J. M. Zurada, and Ayman El-baz, "Automatic Segmentation of Pathological Lung Using Incremental Nonnegative Matrix Factorization", in Image Processing (ICIP), 2015 IEEE Int. Conference on, Quebec City, Canada, September 27-30, pp.3111-3115, 2015.

[12] E. Hosseini-Asl, and J. M. Zurada, and Ayman El-baz, "Lung Segmentation Based on Nonnegative Matrix Factorization," in Image Processing (ICIP), 2014 IEEE Int. Conference on, Paris, France, Oct 2014, pp. 877-881

[13] V. D. Luca, E. Hosseini-Asl, S. Graziani, J. M. Zurada, "Neural Modeling of relative humidity on IP2C vibrating transducer", Procedia Engineering, EUROSENSORS 2014, the 28th European Conference on Solid-State Transducers, vol. 87, pp. 424-427, 2014

[14] E. Hosseini-Asl and J. M. Zurada, "Nonnegative Matrix Factorization for Document Clustering: A Survey," in Artificial Intelligence and Soft Computing, Springer International Publishing, 2014, vol. 8468, pp. 726–737

[15] E. Hosseini-Asl, J. M. Zurada, "Multiplicative Algorithm for Correntropy-Based Nonnegative Matrix Factorization", Journal of Applied Computer Science Methods, 2014.

[16] Zurada, Jacek M., Tolga Ensari, Ehsan Hosseini Asl, Jan Chorowski, "Nonnegative Matrix Factorization and Its Application to Pattern Analysis and Text Mining.", FEDCSIS 2013.

[17] Hossaini-asl, E.; Shahbazian, M. "Nonlinear dynamic system control using wavelet neural network based on sampling theory", IEEE International Conference on Systems, Man and Cybernetics, SMC 2009, Pages: 4502 – 4507, 2009

[18] E. Hossaini-asl, M. Shahbazian, K. Salahshoor, "Non uniform noisy data training using wavelet neural network based on sampling theory", WSEAS Transactions on Systems, Volume 7, Issue 12, pp. 1381-1391, December 2008

[19] E. Hossaini-asl, M. Shahbazian, K. Salahshoor, "Wavelet neural network based on sampling theory for non uniform noisy data", Selected Papers from the WSEAS Conferences in Spain, pp.51-56, 2008

Patents

[1] Determining a Symbol Based on Visual Features of an Image,
provisional application filed: 076409-8004.US00
[2] Patent Disclosure: A Novel Automated and Adaptable MRI-based Alzheimer's Disease Diagnosis CAD System,

Work Experience

June 2015-to date	*Captricity, San Francisco Bay Area* Machine Learning Software Engineer Intern
2009-2012	*National Iranian Oil Company* Instrumentation and Automation Design Engineer.
2007-2009	*Behtaz System Company (private)* Control System Engineer.

Interests

[1] Machine Learning
[2] Deep Learning
[3] Unsupervised Learning
[4] Representation Learning
[5] Natural Language Processing
[6] Computer Vision
[7] Medical Image Analysis

Projects

2015 Language Modeling using Recurrent Neural Network (RNN), GRNN, LSTM, and Recursive Neural Network (Based on Stanford NLP course by Richard Socher), in Python, Theano, and Torch

2015 Brain MRI classification using Deep Belief Network based on Convolutional RBM, C++, CUDA, and Matlab

2015 Building Recommender System Based on Autoencoder Neural Network, Matlab

2015 Developing Acoustic-Articulatory Inversion Speech Inversion using Deep Belief Network, Matlab

2015 Developing a Colaborative filtering-based Recommender system using Autoencoder Network (DBN), Matlab

2014 Developing a Deep CCA (DCCA) neural network using Convolutional Neural Network for Speech Recognition using Acoustic and Articulatory data, C++ on Mac OSX

2014 "Humanizing Black Box Big Data Predictors with the Power of Explanations" PI: Dr Olfa Nasraoui, KSEF-3113-RDE-017", $ 29,776.

2014 "Development of a Unified Database and a Social Network for Innovation" SBIR Phase I, NSF, PI: Ehsan Hosseini-Asl, submitted on December 2nd, 2014

2013 "Lung Image Segmentation Using Nonnegative Matrix Factorization", Medical Image Analysis, developing an algorithm using MATLAB and Python

2013 "Face Recognition, developing a toolkit for face detection, representation, and recognition", Pattern Recognition Machine Intelligence using OpenCV, Python and Matlab toolboxes

2013 "Hybrid Optimization Framework for Affine Medical Image Registration", Combinatorial optimization and Modern Heuristics, applied in Matlab

2013 'Document Clustering Using Nonnegative Matrix Factorization", Artificial Neural system: applied in Matlab

2013 "Consumer Sentiment analysis", designing classifier model (Naïve Bayes, KNN, J48, Random Forrest, Adaboost) on product review data set Web Mining: and using different techniques of preprocessing

2012 "Mobile phone subscribers Dataset", designing classifier model (Decision Tree, Naïve Bayes, J48, JRip, Random Forrest, LogitBoost, AdaBoost, Bagging) and clustering (K-means, Density based, FarthestFirst), Data Mining: applied in Weka software

Presentations

2014 Poster, "A new Autoencoder Neural Network for Deep learning with Better Interpretability", 10th Kentucky Innovation & Entrepreneurship Conference, September 5, 2014

2014 Poster, "Lung Segmentation Based on Nonnegative Matrix Factorization", GSC Reasearch Symposium, University of Louisville, April 5, 2014

Languages

Persian:	Native		
English:	TOEFL:	R:26/30 L:24/30 S:18/30 W:24/30	Total: 92/120
	GRE	Verba:147/170 Quantitative:164/170 Writing:3.5/6	Q+V:311

Computer Skills

Programming:	MATLAB, Python(Numpy, Scipy), C/C++(OpenCV), CUDA,LUAJIT, TORCH, THEANO
OS:	LINUX, Windows
Documentation:	LaTeX, Microsoft Office