

Azin Asgarian

Résumé

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Research interests

- Machine Learning
- Computer Vision
- Transfer Learning
- Deep Learning

Education

2015 – 2018 **M.Sc. in Computer Science**, *University of Toronto, Toronto, Canada*, GPA 3.82/4.0.

Supervisors Prof. Babak Taati and Prof. David Fleet

Thesis “*Subspace Selection to Suppress Confounding Source Domain Information in AAM Transfer Learning*”

2011 – 2015 **B.Sc. in Computer Science**, *University of Tehran, Tehran, Iran*, GPA 3.95/4.0.

Advisor Prof. Mohammad Ganjtabesh

Thesis “*HMAX Computational Visual Cortex Model*”

2007 – 2011 **High school diploma in mathematics and physics**, *NODET (National Organization for Development of Exceptional Talents), Farzanegan High School*, GPA 4.0/4.0.

Publications

1. **Limitations and Biases in Facial Landmark Detection**, **A. Asgarian**, S. Zhao, AB. Ashraf, B. Taati, Workshop for Women in Machine Learning (WIML) at NeurIPS 2019.
2. **Limitations and Biases in Facial Landmark Detection - An Empirical Study on Older Adults with Dementia**, **A. Asgarian**, S. Zhao, AB. Ashraf, E. Browne, KM. Prkachin, A. Mihailidis, T. Hadjistavropoulos, B. Taati, Face and Gesture Analysis for Health Informatics (FGAHI) Workshop at CVPR 2019 (**Spotlight Presentation**).
3. **Prediction of Workplace Injuries**, M. Sadeqi, **A. Asgarian**, A. Sibilia, AI for Social Good (AISG) Workshop at ICML 2019.
4. **Algorithmic Bias in Clinical Populations – Evaluating and Improving Facial Analysis Technology in Older Adults with Dementia**, B. Taati, S. Zhao, AB. Ashraf, **A. Asgarian**, E. Browne, KM. Prkachin, A. Mihailidis, T. Hadjistavropoulos, IEEE Access Journal 2019.
5. **A Hybrid Instance-based Transfer Learning Method**, **A. Asgarian**, P. Sobhani, AB. Ashraf, B. Taati, Machine Learning for Health (ML4H) Workshop at NeurIPS 2018.
6. **Transfer Learning for Linear Subspace Models**, **A. Asgarian**, AB. Ashraf, D. Fleet, B. Taati, Workshop for Women in Machine Learning (WIML) at NeurIPS 2018.
7. **Subspace Selection to Suppress Confounding Source Domain Information in AAM Transfer Learning**, **A. Asgarian**, AB. Ashraf, D. Fleet, B. Taati, International Joint Conference on Biometrics, IJCB 2017.
8. **Barriers to Adoption of Information Technology in Healthcare**, C. Christodoulakis*, **A. Asgarian***, S. Easterbrook, 27th Annual International Conference on Computer Science and Software Engineering, CASCON 2017.

Honors and Awards

- 2018 **Ontario Neurotech Entrepreneurship Award**, Selected among top 10 entrepreneurs in Canada to commercialize our vision-based pain detection technology, *Ontario Brain Institute*.
- 2016 – 2018 **Queen Elizabeth II Graduate Scholarship**, For excellent graduate studies in science and technology, *University of Toronto*.
- 2015 – 2017 **University of Toronto M.Sc. Departmental Fellowship**.
- 2016 **Ranked 2nd in Age-Well Pitch Competition**, A vision-based monitoring technology to support people with dementia, *University of Toronto*.
- 2015 **Ranked 1st**, among all undergraduate Students of Computer Science, *University of Tehran*.
- 2014 Recognized as a **Talented Student** and granted an admission for Master of Computer Science without participating in entrance exam, *University of Tehran*.
- 2012 **Admitted as one of the three eligible teams of IRAN to participate in ACM International Collegiate Programming Contest World Finals 2013**, in *Saint Petersburg, Russia*.
- 2012 **Ranked 2nd** among 90 teams in the **West Asia Regional ACM International Collegiate Programming Contest 2012**, held in *Sharif University*.
- 2011 **Ranked in top 1%** among more than 400,000 participants in the general national university entrance exam for B.Sc. degree.

Academic and Industrial Experience

- 2020 - present **Senior Applied Research Scientist**, “*AI for finance*”, Georgian Partners Inc, Toronto, Canada. Working on a fintech platform with a team of engineers on various areas such as supervised learning, explainability, and representation learning.
- 2018 - 2020 **Applied Research Scientist**, “*Unicorn Prediction*”, Georgian Partners Inc, Toronto, Canada. Developing a machine learning model to find and evaluate high-growing companies and managing three interns working on this project.
- Summer 2019 **Deep Learning and Reinforcement Learning Summer School**, Alberta Machine Intelligence Institute (Amii). Participating in CIFAR Deep Learning and Reinforcement Learning summer school (DLRLSS).
- Summer 2018 **Applied Research Scientist Intern**, “*Injury Prediction using Transfer Learning*”, Georgian Partners Inc, Toronto, Canada. Developing a robust and accurate injury prediction model with using different transfer learning techniques.
- 2017 – 2018 **Research Assistant**, “*Automated Pain Detection in Older Adults with Dementia*”, under supervision of Prof. Babak Taati, University Health Network and Toronto Rehabilitation Institute, Toronto, Canada. Developing a vision-based system for detecting pain in older adults with dementia based on their facial expression.
- Summer 2017 **Deep Learning and Reinforcement Learning Summer School**, Montreal Institute for Learning Algorithm (MILA). Participating in CIFAR Deep Learning and Reinforcement Learning summer school (DLRLSS).
- 2016 – 2017 **Research Assistant**, “*Subspace Selection to Suppress Confounding Source Domain Information in AAM Transfer Learning*”, under supervision Prof. David Fleet and Prof. Babak Taati, Toronto Rehabilitation Institute (TRI), University Health Network, and University of Toronto, Toronto, Canada.
- 2014 – 2015 **Research Student**, “*Analysis of HMAX Computational Visual Cortex Model*”, under supervision Prof. Mohammad Ganjtabesh, University of Tehran, Tehran, Iran.
- Summer 2013 **Software Developer**, University of Tehran, Tehran, Iran. Designing and implementing the financial and administrative Software System of DadehKav Cyber Development Corporation with 3 of my classmates.

Course Projects

- Winter 2016 **Semantic Image Segmentation**, *Probabilistic Graphical Models, University of Toronto, Toronto.*
Analyzing and comparing the performance of CRF-based models with FCN networks and different message passing algorithms on two popular datasets PASCAL 2010 and MSRC-21.
- Fall 2015 **Digit Classification**, *Introduction to Machine Learning, University of Toronto, Toronto.*
Comparing the performance of different classification models on SVHN dataset, including deep networks, SVMs, Gaussian Bayes and KNN classifiers
- Winter 2013 **Designing and Implementing a Graphical Turing Machine**, *Theory of Computation, University of Tehran, Tehran.*
- Fall 2012 **Parking Simulator and traffic Manager**, *Data Structure, University of Tehran, Tehran.*
Simulating a public parking and minimize the traffic with controlling the transportation
- Fall 2011 **Designing and Developing an Interpreter for Simple Java Programs (Java)**, *Foundation of Computer Science and Programming, University of Tehran, Tehran.*
- Winter 2011 **Designing and implementing a Graphical Music Store (C#)**, *Advanced Programming, University of Tehran, Tehran.*

Coursework

- ◇ Machine Learning
- ◇ Computer Vision
- ◇ Matrices and Linear Algebra
- ◇ Information Theory
- ◇ Design and Analysis of Algorithms
- ◇ Advanced Programming
- ◇ Probabilistic Graphical Models
- ◇ Graph Theory
- ◇ Calculus I, II
- ◇ Statistics and Probability I, II
- ◇ Differential Equations
- ◇ Data Structure

Teaching Experience

Performed TA duties in various machine learning, programming, and mathematics courses including:

- ◇ Algorithm Design and Analysis, Koushik Paul, University of Toronto, Summer 2017
- ◇ Neural Networks, Prof. Hinton, University of Toronto, Spring 2017
- ◇ Machine Learning, Prof. Urtasun and Prof. Zemel, University of Toronto, Fall 2016
- ◇ Computer Programming - CSC2506, Prof. Fairgrieve, University of Toronto, Fall 2015
- ◇ Advanced Programming, Prof. Sajedi, University of Tehran, Fall 2014
- ◇ Graph theory, Prof. Noori, University of Tehran, Fall 2013

Manuscript Reviews

Performed peer review for the following conferences and journals:

- ◇ IEEE Access Journal
- ◇ Neural Information Processing Systems (NeurIPS)
- ◇ Women in Machine Learning Workshop (WiML) at NeurIPS
- ◇ Machine Learning for Health Workshop (ML4H) at NeurIPS
- ◇ ACM Conference on Health, Inference, and Learning (ACM CHIL)
- ◇ IEEE International Conference on Automatic Face & Gesture Recognition (FG)
- ◇ North American Chapter of the Association for Computational Linguistics (NAACL)

Memberships and Certificates

- ◇ Certificate of Early Professionals, Inspired Careers program, Age-Well, Canada ([EPIC](#))
- ◇ Member of Intelligent Assistive Technology and Systems Lab, Toronto, Canada ([IATSL](#))
- ◇ Member of University Health Network, Toronto, Canada ([UHN](#))
- ◇ Member of DCS Women committee, University of Toronto
- ◇ Member of Informatics Society of Iran

Technical Skills

Languages Python, TensorFlow, Keras, PyTorch, OpenCV, Menpo, scikit-Learn, Pandas, MATLAB, Java,
and Libraries C/C#, R, Qbasic, Java swing, SQL

Software Windows, Linux, Mac OS

Languages

Farsi Native

English Fluent

- ◇ TOEFL: Reading 25, Listening 28, Speaking 30, Writing 25, Overall 108
- ◇ GRE: Verbal Reasoning 145, Quantitative Reasoning 167, Analytical Writing 4.0

French Basic

Arabic Basic

Extracurricular Activities

- ◇ Painting
- ◇ Volleyball and Swimming
- ◇ Reading Psychology Books
- ◇ Hiking
- ◇ Snowboarding
- ◇ Tennis and Table Tennis