Mahdieh Abbasi

Email: mahdiehabbasi.cs@gmail.com
Web Page: https://mahdaneh.github.io

An enthusiastic and result-driven machine learning researcher with **8 years** of proven and practical research and development experiences in Machine Learning (ML) and computer vision. Working with some companies by researching and implementing deep learning methods for their projects. Collaborating nationally and internationally with peer researchers on different research projects (research papers). Passionate and dedicated to making life of all worldwide people easier by using fair, ethical, and transparent AI. Now, I am a research assistant at IID (Institute Intelligence and Data).

EDUCATIONS

- **Doctorate**, Electrical and Computer Engineering, **Université Laval** (UL) 2015-2020
  Institute Intelligence and Data (IID), Québec, Canada
  Thesis Title: Toward Robust Deep Neural Networks
  Supervisor: Prof. Christian Gagné (a MILA professor)
  Co-supervisor: Prof. Denis Laurendeau

- **Master of Science**, Artificial Intelligence, **Alzahra University** 2010-2012
  Digital Media Lab (DML), Tehran, Iran
  Thesis Title: 3D Human Pose Estimation
  Supervisor: Prof. H. Reza Rabiee (Sharif University of Technology)

- **Bachelor of Science**, Computer Science, **Sharif University of Technology** (SUT) 2005-2010
  DML, Tehran, Iran
  B.Sc. Project: Community Detection in Social Networks
  Supervisor: Prof. H. Reza Rabiee

AWARDS & DISTINCTIONS

- **Best Paper Award**, 33rd Canadian Conference on Artificial Intelligence (CAI), 2020
  Ottawa, Canada
- **Travel Award**, International Joint Conference on Artificial Intelligence (IJCAI), 2019
  Macao, China
- **Award Otis-Lalonde in Artificial Vision**, 2016,2017
  UL, Canada
  (2000CAD Awarded two times for the papers published in 3DVision IEEE & ICLR-W)

- **MITACS Fellowship**, E Machine Learning 2017
  UMR (Unité Mixte de Recherche), Québec, Canada
- **Graduate Fellowship,** UL, Québec ,Canada 2015,2016
- **Accepted to attend Deep Learning Summer School** 2016
  Université de Montreal, Montreal, Canada (**acceptance rate 30%**)

- Accepted in the best technology university in Iran (SUT) as ranked 2005

among top 1% among almost 500,000 participants in the national university entrance exam

COMPUTER-RELATED SKILLS

- **Programming Languages**: Python (proficient level), Java, Matlab, C++
- **Python Packages (proficient level)**: sikit-learn, sklearn, scipy, numpy, matplotlib, Pandas
- **Deep Learning Libs. (proficient level)**: Theano, Lasagne, TensoreFlow, Pytorch
- **Command-line OS** : Linux (Ubuntu), Mac OS
- **Distributed cluster-computing**: CalculQuebec (working with clusters of GPUs)
- **Related Applications*:*** Latex, Git, Docker, SQL Server 2012, MySQL

INDUSTRIAL PROJECTS

- **Data Anonymization and Synthesis** August 2020
  10th Industrial Problem Solving Workshop (IPSW), Montreal, Canada
  As a team member, review the literature of data privacy problem, particularly synthesizing anonymized tabular data, for Desjardins and Bank of Canada.

- **ML for Community-based Healthcare Systems** February 2020
  Research Assistant at Family Medicine, McGill University, Montreal, Canada

- **Robust Object Detector for Partially-labeled Datasets** 2019-2020
  Computer Vision and Systems Lab and Thales, Québec, Canada
  Devising *a self-supervised framework (implemented by Pytorch) for training a robust object detector on a partially labelled dataset: missing-label instances are identified, then they are labelled by an automatic label generation. Refer to "Self-supervised Robust Object Detectors from Partially Labelled Datasets" in publications.*

- **Hockey Player Identification by Jersey Number Recognition** May-August 2018
  Stradigi AI company, Montreal, Canada
  During 4 months of this summer internship, I devised and implemented (using Tensorflow) a pipeline based on weakly supervised (without having labelled bounding-boxes) deep neural networks for automatically localizing the jersey number in a given hockey player image, then recognizing it.

PUBLICATIONS

- **M. Abbasi**, D. Laurandeau, C. Gagné, "Self-supervised Robust Object Detectors from Partially Labelled Datasets", **https://arxiv.org/abs/2005.11549**, 2020.

- **M. Abbasi,** A. Rajabi, C. Gagne, R. Bobba, "Toward Adversarial Robustness by Diversity in an Ensemble of Specialized Deep Neural Networks "**,** Long paper in **Canadian Conference on AI**, 2020 [**Best paper award and oral presentation**].

- **M. Abbasi**, C. Shui, A. Rajabi, C. Gagne, R. Bobba, "Towards metrics for differentiating Out-of-Distribution sets ", **NeurIPS** Workshop on Safety and Robustness in Decision-Making, 2019,

and European Conference on Artificial Intelligence (**ECAI)**, 2020 [**oral at ECAI, acceptance rate ~26%**].

- C. Shui, **M. Abbasi**, L.E. Robitaille, B. Wang, C. Gagné, "A Principled Approach for Learning Task Similarity in Multitask Learning", International Joint Conference on Artificial Intelligence (**IJCAI**), 2019 [**poster, acceptance rate ~18%**].

- **M. Abbasi**, A. Rajabi, A.S. Mozafari, R.B. Bobba, C. Gagné, "Controlling Over-generalization and its Effect on Adversarial Examples Generation and Detection", arXiv: 1808.08282, 2018.

- **M. Abbasi**, A. Rajabi, C. Gagné, R. B. Bobba, "Towards Dependable Deep Convolutional Neural Networks (CNNs) with Out-Distribution Learning", Dependable and Secure Machine Learning (DSML), co-located with Dependable System Networks (**DSN**), 2018.

- **M. Abbasi**, and C. Gagné. "Robustness to Adversarial Examples through an Ensemble of Specialists." International Conference on Learning Representations (**ICLR**) Workshop, 2017.

- F. Kiaee, C. Gagné, **M.Abbasi**, "Alternating Direction Method of Multipliers for Sparse Convolutional Neural Networks.", arXiv:1708.04788, 2017

- **M. Abbasi**, H. R. Rabiee, and C. Gagné. "Monocular 3D Human Pose Estimation with a Semi-supervised Graph-based Method." International Conference on **3DVision**, IEEE, 2015. [**oral, 15% acceptance rate for oral**]

PRESENTATIONS & TALKS

- **Virtually Talk at European Conference on Artificial Intelligence**, Santiago de Compostela, Spain, 2020
- **Poster Presentation at NeurIPS Workshop**, Vancouver, Canada, 2019.
- **Poster Presentation at Montreal AI Symposium**, Montreal, Canada, 2017, 2018, 2020.
- **Poster Presentation at International Conference on Learning Representation**, Toulon, France, 2017.
- **Talk and Poster Presentation at 3DVision(IEEE)**, Lyon, France, 2015.

SERVICES

- Reviewer:
  - Pattern Recognition Letters, ICLR2019, NeurIPS2018, NeurIPS2017

LANGUAGES

- English: Advanced (TOFEL 91/120 and ILETS 6.5/9)
- French: Intermediate
- Persian: mother tongue