Sajjad Pakdaman Savoji

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EDUCATION

2021–2023 MSc in Computer Science, York University.
Supervisor: James Elder Professor and York Research Chair in Human and Computer Vision
GPA: 8.6/9(A+)

2016–2021 BSc in Electrical Engineering, University of Tehran.
GPA: 17.57/20 (3.77/4)

2018–2020 Minor Degree in Computer Engineering, University of Tehran.
GPA: 18.22/20 (4/4), ranked 2^{nd}

2012–2016 Diploma in Mathematics and Physics, NODET Allameh Helli 8 Branch.
National Organization for Development of Exceptional Talents
GPA: 19.73/20

AWARDS AND ACHIEVEMENTS

Sep 2022 VISTA Graduate Scholarship, Vision: Science to Application
Jun 2021 Lassonde Entrance Scholarship, York University
May 2021 VISTA Graduate Scholarship, Vision: Science to Application
Apr 2021 Vector Scholarship in AI, Vector Institute
Jan 2018 Supporter Foundation of University of Tehran Scholorship

TECHNICAL SKILLS

Languages Python(advance), C++(advance), C(intermediate)
Tools Tensorflow, Keras, Pytorch, Scikit-learn, Numpy, Pandas, OpenCV, Jupyter
Softwares MATLAB, LaTeX, Office programs, Quartus, NI Multisim, Codevision, Proteus
OS.s Linux, Windows, macOS

RESEARCH INTERESTS

Artificial Intelligence, Deep Learning, Machine Learning, Computer Vision, Natural Language Processing, Generative Models

RESEARCH EXPERIENCE

Sep'21–Aug'23 RA, Center of Vision Research (CVR), York University.
objectives: Traffic flow analysis on surveillance visual data at crowded intersections
supervisor: James Elder, Prof.

Sep'20–Jul'21 RA, Machine Learning Lab, University of Tehran.
objectives: Manifold learning using a novel ranking loss (continuous separation index) for DNNs
supervisor: Ahmad Kalhor, Assoc.Prof.

Sep'19–Sep'20 RA, Computer Networks Lab, University of Tehran.
objectives: User-level activity and bandwidth prediction using Long-Short-Term-Memory NNs
supervisor: Vahid Shahmansouri, Asst.Prof.

Jul'19–Sep'19 Research Intern, Secure Communication Lab, University of Tehran.
objectives: Iranian Sign Language (ISL) translation from visual footage to text using recurrent NNs
supervisor: Mohammad Ali Akhaee, Asst.Prof.

WORK EXPERIENCE

Jun'21–Jun'22 Committee Member, CUPE Toronto District Council.
Elected as the CUPE local 3903 representative in this council

Jul'19–Sep'20 Strategic Advisor, IEEE University of Tehran Student Branch.
Provided branch's executive committee with decisive advice and support

Apr'20–Jun'20 Mentor, Introduction to Python and Data Science, Amirkabir University of Technology.
Prepared course material as well as hands-on content

Nov'19–Jan'20 Mentor, IEEEUTSB Data Science Winter School, University of Tehran.
Held hands-on session and organized the event

Jul'19–Sep'19 Intern, AVIR Company.
Implemented object detective and localization neural networks such as YOLO2

Jul'18–Jul'19 Vice chair, IEEE University of Tehran Student Branch.
Organized the student branch's different Sections and held several workshops, classes, talks, etc.

TEACHING EXPERIENCES

Sep'22–Dec'22 TA, Design and Analysis of algorithms.
Obligation: held in-person tutorials and graded assignments
Instructor: Shahin Kamali, Assist.Prof, York University

Sep'20–Dec'22 TA, Neural Networks and Deep Learning (4 semesters).
graduate course *Obligation:* designed the final project regarding Generative Adversarial Networks
Instructor: Ahmad Kalhor, Assoc.Prof, University of Tehran

Jan'22–Apr'22 TA, Data Mining.
graduate course *Obligation:* grading projects, assignment, and exams
Instructor: Habib-ur Rehman, Adjunct Prof, McMaster University

Sep'21–Nov'21 TA, Software Tools.
Obligation: holding hands-on sessions and grading projects
Instructor: Hui Wang, Reasearch Assoc, York University

Sep'20–Feb'21 TA, Machine Learning.
graduate course *Obligation:* held hands-on session, designed assignments
Instructor: Babak Nadjar Araabi, Prof, University of Tehran

Feb'20–Jun'20 TA, Pattern Recognition.
graduate course *Obligation:* held hands-on session, designed 2 homeworks and 3 quizzes
Instructor: Mohammadreza Abolghasemi, Asst.Prof, University of Tehran

Sep'20–Feb'21 TA, Intelligent systems.
Obligation: designed 6 final projects and marked them, individual assessment
Instructor: Reshad Hoseini, Asst.Prof, University of Tehran

Feb'20–Feb'21 TA, Digital Signal Processing (3 semesters).
graduate course *Obligation:* designed 4 CAs, one analytical assignment and organized other TAs
Instructor: Hadi Amiri, Asst.Prof, University of Tehran
Instructor: Majid Badieirostami, Asst.Prof, University of Tehran
Instructor: Mohammadali Akhaee, Asst.Prof, University of Tehran

Sep'19–Feb'21 TA, Communication Systems I (3 semesters).
Obligation: designed 4 homeworks all of which include implementation part and 4 CAs, assessed students
Instructor: Maryam Sabaghian, Asst.Prof, University of Tehran
Instructor: Hadi Amiri, Asst.Prof, University of Tehran

Feb'19–Feb'20 TA, Engineering Probability and Statistics (2 semesters).
Obligation: designed homeworks and computer assignments, held Q&A session
Instructor: Mohammadreza Abolghasemi, Asst.Prof, University of Tehran

PROJECTS

Jun'22 **Traffic Flow Analysis at Intersections.**
- remove non-linear distortion from wide-angle surveillance camera
- perform multi-object detection and multi-object tracking on image plane
- back-project tracks into ground plane and extract data such as turn counts

Dec'21 **Celebrity Face Synthesis.**
- trained Real-Valued Non-Volume Preserving Normalizing Flow to generate faces
- trained Deep Convolotional Generative Adversarial Networks to generate faces
- trained Variational Auto Encoders with Convolutional layers to generate faces

Nov'21 **Sentiment Analysis of twits using Neural Language Models.**
- used N-gram and Bag-Of-Words models for hate speech detection
- used Bidirectional Encoder Representations from Transformers(BERT) for hate speech detection
- used Generalized Autoregressive Pretraining (XLnet) for hate speech detection

July'21 **Machine Translation Using Transformers.**
applying transformer-based models(BERT) for English to Persion translation

Feb'21 **Sentence Generation.**
applying LSTM-based Language model for auto-regressive sentence generation

Nov'20 **Generative Models for Natural Scene Synthesis.**
- trained Deep Convolutional GAN (DCGAN) for image generation from CFAR10
- trained Deep Conditional GAN (CGAN) for image generation from CFAR10
- trained Deep Auxiliary Classifier GAN (AC-GAN) for image generation from CFAR10

May'20 **German Traffic Sign Recognition Benchmark.**
Used deep convolutional NNs to classify traffic signs used in germany

Murch'20 **Separation Index trends in Fully Convolutional Networks.**
Computed published separation metrics to examine feature flow through layers of CNNs

September'19 **American Sign Language Translation.**
Combined CNNs and RNNs alongside to develop an alphabet-level language translator

August'19 **Localize Fish Instances on the Boat.**
implemented YOLO2 network to localize fishes while specifying their breeds

June'19 **Speech Identification in MEL Spectrum.**
studied the effect of MEL transformation on speech identification with NNs

CERTIFICATES

January 2022 Build Better Generative Adversarial Networks (GANs), Coursera Credential: XC3RQE34YAXS
January 2022 Sample-based Learning Methods, Coursera Credential: J4YEGV3VWSQ3
Novermber 2021 Build Basic Generative Adversarial Networks (GANs), Coursera Credential: B9M4EX5HRXG3
October 2021 Fundamentals of Reinforcement Learning, Coursera Credential: DMPL7YR2KURX

Volunteering

Dec 21 - Dec 22 Student representative, Vector Institute for Artificial Intelligence
Apr 19 - Apr 20 Ambassador for IEEEmadC Competition
Oct 18 - Oct 20 Ambassador for IEEEXtreme Programming Competition (12.0, 13.0, and 14.0)

LANGUAGES

English Professional Profiency (IELTS 8.0)
Persian/Farsi Native