

# Sepehr Asgarian

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## Contact Information

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Projects: [Github](#)

## Research Interest

- Machine Learning
- Representation Learning
- Computer Vision
- Natural Language Processing

## Education

Western University, London, Canada.

- M.Sc Computer Science Sep 2021–2023

Amirkabir University Of Technology (Tehran Polytechnic), Tehran, Iran

- B.Sc in . Computer Engineering, 2016–2021

– Cumulative GPA till now:

**Via 135 units:  $16.92/20 \cong 3.54/4$**

**GPA over the past two years:  $17.01/20 \cong 3.65/4$**

Danesh High School, Tehran, Iran. 2014–2015

- Diploma in Physics and Mathematics Discipline. GPA:  **$18.92/20$**

Balwyn High School, Melbourne, Australia. 2013–2014

## Publications

- H.Zhou, S.Asgarian, B.Wang, Y.Mohsenzadeh, C.Wong, and F.Wan **”Riemannian Transfer Learning in BCI”**(In preparation)
- S.Asgarian, R.Ghasemi, M.Momtazi, ” **Stock prediction using Generative Adversarial Network (GAN) & Sentiment Analysis** submitted to **Expert Systems with Applications**
- S.Asgarian, S.Momtazi, K.Hashemi, **”Deep Neural Prediction for Confirmed, Recovered, and Dead Cases of the COVID-19”**, submitted to INSF(Iranian National Science Foundations)
- M.Mohammadgholiha, S.Asgarian, P.Toofani Movaghar, S.Soroshian, **”Application of deep and artificial neural network for rapid estimation of buildings responses”**, In preparation

## Honors and Awards

- BrainSCAN Scholarship Award- Canada First Research Excellence Fund (CFREF) (2021)
- Western Graduate Research Scholarship (WGRS) (2021)
- Rank top 10 best teams out of 200 teams in Algorithm Trading Competition Tehran, Iran, (2020)
- Ranked in the top 2% out of 3000 applicants of Bootstrap Lean Startup training program at Sharif University of Technology(Oct 2016 - Jun 2017)
- Ranked in top 3% among all students in university entrance exam (Approximately 250000 applicants) in Math. and Eng., Iran, (2016)

## Relevant Education and Course Work

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|---------------------------------------|----------------------------------|
| ◦ Machine Learning(MSc): 18.5/20      | ◦ Algorithm Design: 20/20        |
| ◦ Data Structure and Algorithm: 20/20 | ◦ Advanced Programming: 20/20    |
| ◦ Signal and Systems: 18.25/20        | ◦ Computer Architecture: 18.3/20 |
| ◦ Linear Optimization: 18.8/20        | ◦ Engineering Ethics: 20/20      |
| ◦ Principles of Management: 19/20     | ◦ Software Engineering 18.5/20   |

<b>Teaching Experience</b>	<p>Western University, London, Canada Teaching Assistant</p> <ul style="list-style-type: none"> <li>◦ Software Tools and System Programming, Fall 2021</li> </ul> <p>Staffordshire university, Staffordshire, England Unofficial Teaching Assistant</p> <ul style="list-style-type: none"> <li>◦ Artificial Intelligence for Computer Games, Instructor: Dr.Saeed Shiry Ghidary Fall 2020</li> <li>◦ Robot Ethics In An AI world, Instructor: Dr.Saeed Shiry Ghidary Fall 2020</li> </ul> <p>Amirkabir University Of Technology, Tehran, Iran Teaching Assistant (sample graded material and student evaluations available upon request)</p> <ul style="list-style-type: none"> <li>◦ Data Mining, Instructor: Dr.Ehsan Nazerfard Spring 2021</li> <li>◦ Compiler Design, Instructor: Dr.Mohammadreza Razzazi Fall 2020</li> <li>◦ Signals and Systems, Instructor: Dr.Mehdi Rasti Fall 2020</li> <li>◦ Computer Architecture, Instructor: Dr. Hamid R. Zarandi Spring 2020</li> <li>◦ Principles of Computer Programming(English), Instructor: Dr.Shiry Ghidary Spring 2019</li> <li>◦ Data Structures &amp; Algorithms, Instructor: Dr.Mohammad Akbari Spring 2019 &amp; Fall 2019</li> <li>◦ Principles of Computer Programming, Instructor: Dr.Saeed Shiry Ghidary Spring 2019</li> </ul>
<b>Research Experience and Notable Projects</b>	<ul style="list-style-type: none"> <li>◦ <b>Predicting the Number of Infected Cases of COVID-19 Using Hybrid Deep Learning Methods</b> <i>Fall 2020-now</i> I am working on this project under supervision of Dr.Saeedeh Momtazi which is submitted as a proposal to INSF(Iranian National Science Foundations) for funding. The main goal of this project is to use a combination of several advanced artificial intelligence algorithms to accurately detect future trends and predict all three cases of confirmed, recovered, and dead cases of COVID19 up to the next 14 days.</li> <li>◦ <b>Twitter Sentiment Analysis and Topic Modeling on COVID-19 Outbreaks</b> <i>Fall 2020</i> With the unexpected emergence of COVID-19 in December 2019, in this study we used the Twitter data about 14,607,013 tweets, retweets, and replies with a different COVID-19 hashtags. Sentiment Analysis techniques using the Empath lexical library and Topic Modeling by Latent Dirichlet Allocation(LDA) were then performed. The goal is to extract People's concerns and emotions during the pandemic.</li> <li>◦ <b>Brain tumor detection in 3D MRIs</b> <i>2020</i> Implemented for the Machine Learning course's final project. The purpose of this project was to create a detection model to classify normal and cancerous tissues. In this project, Data Augmentation and Data Preprocessing were applied. In addition, I used Convolution Neural Network (CNN) to classify MRI images.</li> <li>◦ <b>Stock prediction using Generative Adversarial Network (GAN) &amp; Sentiment Analysis</b> <i>October 2020 – present</i> The research I am working under supervision of Dr. Momtazi as my bachelor project at Amirkabir University of Technology. In this project, I used a combination of GAN and sentiment analysis to predict the future trend of 21 various stock markets in Persian and English language.</li> <li>◦ <b>TRUST Platform:</b> <i>Fall 2019</i> Artificial neural networks (ANN) and deep neural networks (DNN) are utilised in this study to quickly predict structural reactions such as drift, acceleration, and velocity for urban and regional risk assessment applications.</li> <li>◦ <b>Search Engine, a complete implementation of Persian and English language search engine</b> <i>Fall 2019</i> In order to increase performance of this Search Engine, some Retrieval methods such as Elimination Index, Cosine Similarity and Champion List is applied.</li> <li>◦ <b>Dimensional-Reduction-Using-Genetic-Algorithms</b> <i>Fall 2019</i> Used the DEAP library to choose a subset of features that gives better accuracy than the baseline. Gaussian naïve Bayes and logistic regression is used for fitness function. Implemented for the computational Machine Learning course.</li> </ul>

<b>Presentation</b>	<ul style="list-style-type: none"> <li>○ Undergraduate Talk 2020, entitled “Auto Encoder“, Summer 2020</li> <li>○ Undergraduate Talk 2018, entitled “Principal Component Analysis “, Fall 2018</li> <li>○ Presentation of <a href="#">Elementary Chemistry on Youtube</a>, Fall 2014</li> </ul>
<b>Technical Skills</b>	<ul style="list-style-type: none"> <li>○ <b>Theoretical Background:</b> Experienced in Design of Algorithms, Data Structures.</li> <li>○ <b>Programming &amp; Scripting Languages:</b> Expert in: Java, C/C++, Python. Familiar with: Matlab, VHDL, Verilog, Assembly, Shell Script.</li> <li>○ <b>Data Mining &amp; Visualization:</b> Scikit-Learn, Pandas, Matplotlib, Numpy, ploty, seaborn</li> <li>○ <b>Machine learning &amp; Deep learning :</b> PyTorch, Tensorflow</li> <li>○ <b>Database Management Systems :</b> Familiar with: MySQL.</li> <li>○ <b>Operating System :</b> Windows, Linux</li> <li>○ <b>Other:</b> Metatrader4, <math>\text{\LaTeX}</math>, Google AdWords, Google AdSense, Orcad Pspice, Atmel Studio</li> </ul>
<b>Work Experience</b>	<a href="#">Institute for Research in Fundamental Sciences (IPM)</a> , Tehran, Iran. June 2019–September 2019
<b>Extra-Curricular Activities</b>	<ul style="list-style-type: none"> <li>○ <b>Member of Organization Committee</b> (Dec 2019 &amp; Mar 2019) 4th &amp; 5th Amirkabir International Artificial Intelligence Contests</li> </ul>
<b>Trading</b>	
<b>Hobbies</b>	<ul style="list-style-type: none"> <li>○ Guitar</li> <li>○ Table Tennis</li> <li>○ Basketball</li> </ul>
<b>Language proficiency</b>	<ul style="list-style-type: none"> <li>○ <b>Persian</b> (Native or bilingual proficiency)</li> <li>○ <b>English</b> (Professional working proficiency) <ul style="list-style-type: none"> <li>○ TOEFL iBT : 97 (Reading 27, Listening 22, Speaking 25, Writing 23)</li> </ul> </li> </ul>
<b>References</b>	References are available upon request.