# Ali Hejazizo | Curriculum Vitae

**University of Alberta–Department of Computer Science**

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## RESEARCH INTERESTS

- Machine Learning
- Natural Language Processing

## EDUCATION

- **Master of Science** — May, 2016–Present
  *University of Alberta* — *Edmonton-Canada*
  - Computer Science — May, 2017–2019 (Expected)
    - GPA: 4/4 via 9 credits
  - Electrical and Computer Engineering — May, 2016–2017
    - GPA: 3.9/4 via 9 credits
- **Bachelor of Science** — 2011–2015
  *Amirkabir University of Technology* — *Tehran-Iran*
  - Electrical and Computer Engineering
    - Major: Power Systems
    - Minor: Electronics
    - GPA: 4/4

## HONORS

- Ranked 1st in Electrical Engineering, Power Group, among more than 30 students, Amirkabir University of Technology, Tehran, Iran.
- Ranked 121st in university entrance exam, among more than 300,000 participant [Summer 2011].
- Exempted from university entrance exam for M.Sc. program and offered M.Sc. program from both Sharif and Amirkabir University of Technology.
- Permitted to study Electronics as a minor (This permission is only awarded to talented students, introduced by the Exceptional Talents Office).
- Granted admission from Talented Student Office of Amirkabir University of Technology for graduate study.

## INTERNSHIP

- Investigation, detection and identification of abnormalities in customers' consumption patterns in power distribution systems, using Data Mining methods such as K-Means, PSO, Fuzzy, and SFLA algorithms, in order to reduce Nontechnical Losses.
  - Supervisor: Dr. Hosseinian

## PUBLICATION

Hejazizo, A. , Azad, S. P. , & Van Hertem, D.. (2015). Interoperability of Protection Systems in High Voltage Direct Current (HVDC) Networks. In *CIGRE Canada Conference - Future Power Systems and Grid Resiliency* (pp. 1-6). October.

## PROJECTS

In progress:

- Mapping Macroscopic Brain Connectomes via Multidimensional Encoding, Learning, and Optimization using dMRI brain images.
  - Mapping onnectomes for one part of the brain, the arcuate fasciculus, using extremely high-dimensional sparse tensors.
  - Loading data and visualization in Matlab
  - Encoding, learning, and optimization in C using multithreading with OpenMP, and GPU parallel computing
  - Supervisor: Dr. Martha White
- Question Answering System Implementation with Memory Networks.
  - Step 1: Rewriting the question into one or more equivalent forms (paraphrases).
  - Step 2: Compiling questions into query templates.
  - Step 3: Logical query rewrite (based on the RDF graph).
  - Step 4: Ranking the answers.
  - Supervisor: Dr. Denilson Barbosa

Completed:

- Diagnosis of Alzheimer's Disease Based on Structural MRI Images using Machine Learning Techniques.
  - Step 1: Preprocessing MRI images using Freesurfer tools.
  - Step 2: Feature extraction.
  - Step 3: Applying machine learning techniques for diagnosis task.
  - Supervisor: Dr. Jörg Sander
- Implementation of model compression with teacher-student method on MNIST dataset using Tensorflow.
  - Supervisor: Dr. Nilanjan Ray
- Evaluation of machine learning classifiers in the task of passengers' survival prediction on titanic dataset.
  - Step 1: Visualization.
  - Step 2: Preprocessing data, in particular handling missing value.
  - Step 3: Applying three different machine learning classifier, namely logistic regression, neural network, and SVM.
  - Step 4: Applying statistically significance tests to evaluate classifiers' results.
  - Instructor: Dr. Martha White
- Efficient keyword and phrase retrieval for the boolean and vector space models. This project includes:
  - Building an inverted index to enable fast document retrieval.
  - Boolean and vector space model retrieval.
  - Zone indexing and scoring.
  - Supervisor: Dr. Denilson Barbosa
- Implementing Telegram Application Robots using Telebot API.
  Implemented in Python using SQLite database.
  - @autstackbot:
    - In this project, I have implemented a Telegram Bot so that students can send questions, receive answers, mark correct answers as accepted, etc. The environment is continuously improving to have all functionalities of Stackoverflow website.
    - Users are currently over 150 students.
  - @python_compile_bot: This robot receives commands from users and interprets them in python language, then shows the result in a neat and beutiful format.
- RS232 protocol implementation.
  - The project includes two GUI in MFC and pyQt to send and receive data, respectively.
  - Supervisor: Dr. Jahanshahi

## Courses

- Machine Learning [Fall 2017]
  - A+
  - Instructor: Dr. Martha White
- Knowledge Discovery and Data Mining [Fall 2017]
  - A
  - Instructor: Dr. Jörg Sander

- Advanced Programming [Winter 2015]
  - A+
  - Instructor: Dr. Amir Jahanshahi
- Information Retrieval [Winter 2018]
  - In Progress
  - Instructor: Dr. Denilson Barbosa
- Knowledge Graph [Winter 2018]
  - In Progress
  - Instructor: Dr. Denilson Barbosa
- Visual Recognition (Deep Learning) [Winter 2018]
  - Auditor
  - Instructor: Dr. Nilanjan Ray

## ONLINE COURSES

Completed:

Coursera
- Machine Learning
- Getting Started with Python
- Python Data Structures
- Using Python to Access Web Data
- Using Databases with Python
- The Data Scientist's Toolbox
- Introduction to HTML5
- Introduction to CSS3
- Interactivity with JavaScript

Udemy
- Introduction to Parallel Programming using GPGPU and CUDA

In progress:

Udemy
- Complete Guide to TensorFlow for Deep Learning with Python
- Deep Learning A-Z™: Hands-On Artificial Neural Networks
- Deep Learning: Recurrent Neural Networks in Python
- Data Science: Natural Language Processing (NLP) in Python
- Machine Learning A-Z™: Hands-On Python & R In Data Science
- Complete Python Bootcamp: Go from zero to hero in Python

## COMPUTER SKILLS

### Programming/Scripting

- Python
  - Tensorflow
  - nltk
  - Sklearn
  - Numpy
  - SciPy
  - Pandas
  - matplotlib
- MySQL
- SQLite
- SPARQL
- C/C++
  - OpemMP
- JavaScript
- HTML5/CSS3
- LaTeX
- MFC

### IDEs/Tools

- PyCharm
- Sublime Text
- Spyder
- Qt Creator
- PyQt
- IntelliJ
- MS. Visual Studio
- Matlab
- Freesurfer

## TEACHING EXPERIENCES

- Teaching Assistant
  - CMPUT 101 - Introduction to Computing — Winter 2017, Fall 2017 & Winter 2018
    - Lab instructor
    - Instructor: Dr. Janelle Harms (University of Alberta)
  - Advanced Programming — Winter 2016
    - Instructor: Dr. Jahanshahi (Amirkabir University)
  - C++ Programming — Fall 2015
    - Instructor: Dr. Amir Jahanshahi (Amirkabir University)
  - Electrical Machines I — Winter 2014
    - Instructor: Dr. Javad Moghani (Amirkabir University)
  - Engineering Mathmathics — Fall 2013
    - Instructor: Dr. Yaser Norouzi (Amirkabir University)

**References, Further information, and Proofs are available upon Request**