Ali Salar

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Birthdate: January 8, 1998 – Address: Tehran, Iran

Education

K.N.Toosi University of Technology (**World university rankings 2023**: $1001 - 1200^{th}$) — Tehran, Iran
M.Sc. in Computer Engineering - Artificial Intelligence and Robotics — *2020 – 2023*

- ***M.Sc. Thesis***: Automatic Image Annotation using Deep Recurrent Convolutional Networks
- *Supervisor*: Dr. Ali Ahmadi
- ***Cumulative GPA***: 18.02/20 (***US CGPA***: 4/4) - Top **20**% in the graduating class

K.N.Toosi University of Technology — Tehran, Iran
B.Sc. in Computer Engineering — *2016 – 2020*

- ***B.Sc. Thesis***: Design and Implementation of Android Apartment Management Application using Web Services
- *Supervisor*: Dr. Ali Ahmadi
- ***Cumulative GPA***: 17.34/20 (***US CGPA***: 3.80/4) - Top **25**% in the graduating class

Fields of Interests

- **Machine Learning:** *Deep Learning - Reinforcement Learning - Transfer Learning*
- **Image Processing and Computer Vision:** ***Image Annotation*** - ***Object Detection*** - *Image segmentation / 3D point cloud segmentation - Image Generation - Video-based Object Tracking - Visual Odometry*
- **Natural Language Processing:** *Sentiment Analysis - Machine Translation*
- *Software Engineering - Software Development - Data Mining*

Publications

- **A. Salar** and A. Ahmadi, "*Enhancing high-vocabulary image annotation with a novel attention-based pooling*". (DOI and Github link)
- **A. Salar** and A. Ahmadi, "*Improving loss function for deep convolutional neural network applied in automatic image annotation*", **Visual Computer**, Accepted on **12 April 2023**. (DOI and Github link)

Honors and Awards

- Straight M.Sc. of Artificial Intelligence **Admission**, from K. N. Toosi University of Technology (2020)
- Full Tuition Fee **Waiver**, from K. N. Toosi University of Technology (2016 – 2023)

Certifications

- **Machine Learning Specialization** (3 Courses), Certificate link, 2022
- **Deep Learning Specialization - Sequence Model**, Certificate link, 2021
- **Build Basic Generative Adversarial Networks (GANs)**, Certificate link, 2021

Academic and Work Experience

Computer Vision Engineer (Full-Time) — Sep 2023 – Now
Developing a hybrid deep learning system for UAV navigation without GPS

Graduate Student Researcher (Full-Time) — Feb 2022 – Sep 2023
Intelligent Information Processing Lab, Supervisor: Dr. Ali Ahmadi

Data Scientist at Telecommunication Infrastructure Company (Part-Time) — Aug 2021 – Mar 2022
Analyzing TIC's customer churn rate under Dr. Ali Ahmadi's supervision

Teaching Assistant — Feb 2020 – Jun 2020
TA for Computer Networks, Instructor: Dr. Fatemeh Rezaei

Head Teaching Assistant — Feb 2019 – Jun 2020
TA for Algorithm Design, Instructor: Dr. Ali Ahmadi

Teaching Assistant — Sep 2019 – Jan 2020
TA for Principles of Database Design, Instructor: Dr. Saeed Farzi

Selected Projects

CNN - GCN - LSTM Image Annotation (Github link - Github link - Github link)

- *Combination of some recent articles to assess and improve cutting-edge techniques for multi-label classification*
- ***State-of-the-art CNNs as feature extractors, along with various Loss Functions***
- ***Wasserstein-GAN for data augmentation***
- ***Graph Convolutional Network (GCN) to model the label dependencies***
- ***LSTM + Attention Mechanism to learn salient features in images***

LSTM Projects (Github link)

- *Implementation of "name generation", "emotion classification", and "date translation" using LSTM architecture*
- ***PyTorch***

Covid-19 Recognition (Github link)

- *Implementation of a pre-trained CNN for the covid-19 recognition from chest X-Ray images*
- ***PyTorch***

Pitch Detection (Github link)

- *Implementation of "short-time autocorrelation", "short-time AMDF", and "real cepstrum" for speech pitch detection*
- ***Matlab***

Wumpus Q-Learning (Github link)

- *Implementation of 5x5 Wumpus game using the Q-Learning algorithm*
- ***Python and Javascript***

Pentago mini-max (Github link)

- *Implementation of the Pentago game using the mini-max algorithm and alpha-beta pruning*
- ***Java and JavaFX***

Technical Skills

Deep Learning: Python (**Pytorch** - Tensorflow and Keras - Sklearn - NumPy - Matplotlib) - Neural Networks (CNNs - RNNs - Transformers - GCNs)

Web and Application Development: Microsoft asp .net core (C#) for Back-end - **Flutter (dart)** for Apps - HTML/CSS, Bootstrap, and JavaScript/jQuery for Front-end

Programming Languages: C# - C++ - Matlab - Java/JavaFX - Verilog, VHDL and x86 Assembly (familiar)

Tools: Git and Github - Kaggle and Colab - Docker(familiar) - LaTeX

Relevant Courses

- **M.Sc.:** *Digital Image Processing (17.8/20 - Dr. H. Abrishami Moghaddam) - Machine Learning and Advanced Data Mining (19/20 and 19.5/20 - Dr. A. Ahmadi) - Neural Networks (18.25/20 - Dr. M. Teshnehlab)*
- **B.Sc.:** *Algorithm Design (18.5/20 - Dr. A. Ahmadi) - Computer Networks (18.5/20 - Dr. A. Ghasemi) - Principles of Database Design (19/20 - Dr. S. Farzi) - Software Engineering (18/20)*

Language Proficiency

Persian: Native
English: Fluent
IELTS Academic will be done by the end of **August 2023**
Arabic: Novice

Hobbies

Playing Chess - Playing Volleyball (setter and libero) - Going to Gym - Playing video games - Cooking

References

Dr. Ali Ahmadi (Scholar - LinkedIn) Toronto, Canada

- AI Advisor in York University
- Associate Professor in K. N. Toosi University of Technology, AI Department, Computer Faculty
- E-mail: ahmadi@kntu.ac.ir

Dr. Hamid Abrishami Moghaddam (Scholar) Tehran, Iran

- Professor of Biomedical Engineering in K. N. Toosi University of Technology, Electrical and Computer Faculty
- E-mail: moghaddam@kntu.ac.ir

Dr. Saeed Farzi (Scholar - LinkedIn) Tehran, Iran

- Assistant Professor in K. N. Toosi University of Technology, AI Department, Computer Faculty
- E-mail: saeedfarzi@kntu.ac.ir

Dr. Fatemeh Rezaei (Scholar - LinkedIn) Tehran, Iran

- Assistant Professor in Data Networks at K. N. Toosi University of Technology, Computer Faculty
- E-mail: frezaei@kntu.ac.ir