Ali Omrani

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EDUCATION

University of Tehran — B.Sc. — Computer Engineering - Software [2014 - 2019]

- Cumulative GPA 3.9/4 (18.45/20) — ranked 2nd in the CE track — Best Thesis Award
- Last 2 years' GPA 4/4 (19.43/20)

Allameh Helli High School — Diploma — Math and Physics Discipline [2010 - 2014]

- GPA 4/4 (19.92/20)
- Affiliated with NODET (National Organization for Development of Exceptional Talents)

HONORS & AWARDS

- Best Bachelors Thesis Award From Tap30 and University of Tehran [2019]
- Ranked 2nd Among UT Computer Engineering Students Class of 2018 [2018]
- DAAD scholarship for Summer internship under IAESTE program [2017]
- F.O.E. (Faculty of Engineering) Award [2016]
- Ranked 115th among near 300000 Students in university entrance exam [2014]
- 3rd Place in RoboCup Iran Open 2012 junior soccer league [2012]
- Accepted as an exceptional talent in NODET [2007]

RESEARCH & VOLUNTEER WORK

Research Assistant, Cognitive Systems Lab, University of Tehran [Aug 2018-Aug 2019]

- Worked on attention mechanism under the supervision of Prof. Majid Nili Ahmadabadi
- Completed my bachelors thesis on devising a new network structure to use attention mechanism to incorporate side information to
  - Accelerate Learning
  - Improve Generalization

Technical Committee, RoboCup Asia-Pacific (RCAP) 2018 [Aug 2018-Dec 2018]

- Held a workshop on "Deep Learning and Modern Computer Vision"

Technical Committee, RoboCup Iran Open Competitions [Jan 2016-Dec 2018]

Intern, Fraunhofer IDMT, Ilmenau, Germany [Summer 2017]

- Built a singing voice detection system using deep convolutional neural networks
- Achieved comparable accuracy using 1000 times less data than the reference paper by Jan Schlüter
- Worked with Keras, Theano, Tensorflow, and Pytorch.
- Under the supervision of Dr.-Ing. Estefanía Cano Cerón and Stylianos Ioannis Mimilakis
- Got familiar with deep learning, convolutional neural networks, recurrent neural networks and music information retrieval techniques through the following courses

- Convolutional Neural Networks for Visual Recognition course from Stanford
- Neural Networks for Machine Learning course from Geoffrey Hinton on Coursera [partially]

Research on CDR of Iran's mobile operators, University of Tehran [Summer 2016]

- Built graphs from CDR data and analyzed several graph characteristics
- Found out about anomalies and the reasons behind them including the following
  - Spammers in the network trying to do mass advertising through text messages
  - Peak of the network usage just before certain holidays due to of the large volume of greetings
  - Irregularities in the pattern of text message traffic due to a popular TV show that had a soccer result prediction competition through text messages
- worked under the supervision of Dr. Behnam Bahrak
- Got familiar with D3 / neo4j graph database / R / Python through the following course
  - Graph Analytics for Big Data on Coursera from University of California San Diego

TEACHING ASSISTANTSHIP

Introduction to software testing [**Chief TA**]	Dr. Khamespanah	[Fall 2018]
Introduction to Network Security	Dr. Sayad Haghighi	[Fall 2018]
Operating Systems	Dr. Kargahi	[Fall 2018]
Databases	Dr. Shakery	[Fall 2018]
Artificial Intelligence [**Chief TA**]	Dr. Moradi	[Spring 2018]
Introduction to Network Security	Dr. Sayad Haghighi	[Spring 2018]
Operating Systems	Dr. Kargahi	[Spring 2018]
Databases	Dr. Shakery	[Spring 2018]
Operating Systems	Dr. Kargahi	[Fall 2017]
Databases	Dr. Shakery	[Fall 2017]
Theory of Formal languages and Automata	Dr. Fadaei	[Spring 2017]
Engineering Probability and Statistics	Dr. Bahrak	[Fall 2016]
Introduction to Computing Systems and Programming	Dr. Moradi Dr. Hashemi	[Fall 2015]

SKILLS

- **PROGRAMMING**

  Python / C / C++ / Java / Matlab | TensorFlow / Theano / Keras | Verilog / VHDL / BashScript / R | JavaScript/ Node.js / React / HTML / CSS | TeX / LaTeX | Cypher / SQL

- **PROGRAMS**

  R studio | Selenium / Grinder | Kali / OpenSSL / BeEF | Antlr | Quartus / Multisim | Modelsim / CodeVision / QtSpim / Xilinx ISE | VIM / IntelliJ / PyCharm | VirtualBox / Vmware / Mininet

- **LANGUAGES**

English TOEFL **118/120** , R:**30**-L:**30**-S:**30**-W:**28**
GRE V:**151** (**52nd** percentile), Q:**167** (**91st** percentile), AW:**4.5** (**82nd** percentile)

SELECTED PROJECTS

Interpretable Medical Decision Support System | Cognitive Systems lab at UT

- Utilizing attention mechanism to incorporate prior knowledge into decisions and boost interpretability

Singing Voice Detection from Weak Labels | Internship at Fraunhofer IDMT

- Implementation of Jan Schlüter's paper Using Keras and TensorFelow as backend

Substitution Cypher Solver System | Artificial Intelligence

- Implemented in Matlab using Genetic Algorithm to find encryption key from letter frequencies

Sudoko Solver | Artificial Intelligence

- Implemented in Python using informed and uninformed search methods

MLP Hardware Description for digit detection on MNIST dataset | CAD

- Designed and Implemented using VHDL on FPGA

Multi-client Snake Game | Computer Networks

- Implemented Using Python, PyGame and deployed on Mininet

CFS Scheduler, Semaphore with PIP and avoidance of starvation | OS Laboratory

- Implemented in the linux 2.6 kernel using C programming language

Chat system with file sharing , Multithread Matrix Multiplication | Operating System

- Implemented using C language , Sockets ,and Pthread Library

Prediction & Analysis on price of gold vs dollar vs oil | Probability and Statistics

- Implemented using Matlab as the final project of the course

REFERENCES

- **Dr. Behnam Bahrak**
  Assistant Professor, ECE, University of Tehran
  Software Engineering Group
  Phone: +98 (21)82084305
  Email: bahrak@ut.ac.ir

- **Dr.-Ing. Estefanía Cano Cerón**
  Post-doctoral researcher, Fraunhofer IDMT
  Semantic Music Technologies Research Group
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- **Dr. Azadeh Shakery**
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