

Ali Gholami

COMPUTER ENGINEERING & INFORMATION TECHNOLOGY DEPARTMENT
AMIRKABIR UNIVERSITY OF TECHNOLOGY

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EDUCATION

B.S. Computer Engineering @ AMIRKABIR UNIVERSITY OF TECHNOLOGY

[Global Rank of 165 in CS]

[National Center of Excellence in A.I.]

GPA: 3.6/4

Mathematics & Physics Diploma @ KAMAL HIGHSCHOOL

GPA: 19/20

RESEARCH INTERESTS

- Visual Question Answering
- Image Segmentation
- Image Captioning
- Deep Learning

RELATED COURSES

Machine Learning @ AMIRKABIR UNIVERSITY OF TECHNOLOGY

Computer Vision @ UDACITY

Deep Learning @ UDACITY

cs231n @ STANFORD UNIVERSITY

OpenMP @ INTEL

RESEARCH EXPERIENCE

CEIT @ AMIRKABIR UNIVERSITY OF TECHNOLOGY

Dec 2017 – Present

Computer Vision — Pattern Recognition

- Implementation of *AlexNet CNN* architecture using *Tensorflow*. [\[code\]](#)
- Implementation of a *DCGAN* to draw *MNIST* using *Tensorflow*. [\[code\]](#)
- Implementation of a *Variational Autoencoder* using *Tensorflow*. [\[code\]](#)
- Implementation of various *Deep Learning* techniques using *Tensorflow*. [\[code\]](#)

TECHNICAL REPORTS

Statistical Pattern Recognition

Advisor: Prof. Mohammad Rahmati

- *Introduction to Linear Algebra – Statistics – Probabilities* [\[docs\]](#)
- *LDA & QDA – Bayesian Classification – Error Bounds* [\[docs\]](#)
- *MLE & Bayesian Parameter Estimation – Kernel Density Estimation* [\[docs\]](#)

Data Mining

Advisor: Prof. Ehsan Nazerfard

- *Association Rule Mining – Feature Engineering* [\[docs\]](#)
- *Decision Tree Classifier – Data Cleaning* [\[docs\]](#)

Design & Implementation of Programming Languages

Advisor: Prof. Mehran S. Fallah

- *Induction & Denotational Semantics – Lambda Calculus* [\[docs\]](#)
- *Lisp & Garbage Collection – Higher-order Functions* [\[docs\]](#)
- *Algol & Meta Language – ML Data Types & Patterns* [\[docs\]](#)
- *Type Safety & Type Inference – Polymorphism* [\[docs\]](#)

Computer Networks

Advisor: Prof. Siavash Khorsandi

- *Introduction to Computer Networks* [docs]
- *Packet Transmission Approaches – Congestion Control* [docs]
- *Queuing & Delay Analysis & Network Protocol Stack 1* [docs]
- *Queuing & Delay Analysis & Network Protocol Stack 2* [docs]
- *Multiplexing & Multiple Access Medium – IETF* [docs]
- *Application Layer Protocols; HTTP – FTP – SMTP – CDN – DNS* [docs]

Multi-core Programming

Advisor: Prof. Mahmoud Momtazpour

- *Parallel Architectures – Speedup Metrics* [docs]
- *OpenMP – Parallelization of Matrix Computations* [docs]
- *OpenMP – Parallelization of Sort Algorithms* [docs]

Engineering Ethics

Advisor: Prof. Ali Dizani

- *A Deep Analysis of Ethical Dilemmas in Computer Engineering.* [docs]

WORK EXPERIENCE

Internship @ [ARVAN CLOUD](#)

Jun – Sep 2017

Web Application Development

- *HTML, CSS, PHP, Laravel, Javascript, ECMAScript, Node.js, Vue.js, React.js*

Internship @ [FANDOGH](#)

Jun – Aug 2017

Mobile Application Development

- *Java, React Native*

TEACHING EXPERIENCE

T.A. @ CEIT @ AMIRKABIR UNIVERSITY OF TECHNOLOGY

Sep – Dec 2017

Microprocessors & Assembly Programming

Advisor: Prof. Mahdi Homayounpour

[Resources]

T.A. @ ENG @ KHARAZMI UNIVERSITY OF TEHRAN

Sep – Dec 2015

Foundations of Programming in C++

Advisor: Dr. Azadeh Mansouri

[Resources]

HONORS

Admitted to Amirkabir University of Technology among all bachelor students at Computer Engineering Department, Kharazmi University of Tehran.

Aug 2018

Member of Executive Team at the 17th [International Collegiate Programming Contest](#) held at the [Amirkabir University of Technology](#).

Nov 2017

Participated in the 4th national programming contest held at the [Sharif University of Technology](#) as a member of *Morph* team.

Sep 2017

Ranked top 3 among all bachelor students at Computer Engineering Department, [Kharazmi University of Tehran](#).

July 2016

Participated in the [Avatech](#)'s Educational Startup Weekend held at the [University of Tehran](#), as a member of *3-mim* team.

Jun 2015

Ranked top 0.006 in the Nationwide University Entrance Exam among all students in Mathematics and physics (approximately 250,000).

July 2014

	Elected as the tidiest student at the campus of international summer school, <i>Institute Monte Rosa</i> , Montreux, Switzerland.	Aug 2011
TALKS	Machine Learning at Scale <ul style="list-style-type: none"> Based on the paper <i>Rules of Machine Learning</i> by Dr. Martin Zinkevich. 	Oct 2017
	Energy Awareness <ul style="list-style-type: none"> Based on the paper <i>Energy-aware adaptation for mobile applications</i> by Dr. Jason Flinn. 	July 2017
	Metasploit Framework <ul style="list-style-type: none"> Introduction to <i>Metasploit Framework & Social Engineering</i> techniques. 	May 2017
SKILLS	Languages Persian (<i>native</i>), English (<i>advanced working proficiency</i>)	
	Programming <i>Python, VHDL, C/C++, Java, Assembly, AVR Assembly, Javascript, HTML/CSS, L^AT_EX, Racket, ML, Scheme.</i>	
	Tools & Platforms <i>Intel Parallel Studio, OpenMP, Tensorflow, scikit-learn, Numpy, Pandas, Matplotlib, Weka, Arduino, ARM, AVR, CodeVision, Xilinx Vivado, ModelSim, Atmel Studio, Cadence PSpice, Keil, Dr. Racket, MongoDB, PostgreSQL, MySQL, Visual Studio, TeXstudio.</i>	
NOTABLE PROJECTS	KDEPlot , <i>Density Estimation</i> <ul style="list-style-type: none"> Implementation of 1-D and 2-D Kernel Density Estimation Methods in Python using Numpy and Matplotlib Only. [code] 	
	KNNCC , <i>Image Classification</i> <ul style="list-style-type: none"> Implementation of a K-Nearest Neighbour <i>CIFAR-10</i> Classifier in Python. [code] 	
	Paralab , <i>Parallel Processing</i> <ul style="list-style-type: none"> Implementation of frequent parallel problems using OpenMP and Intel Parallel Studio in C. [code] 	
	Annealing , <i>Data Cleaning & Preprocessing</i> <ul style="list-style-type: none"> Preprocessing and training the dataset of annealing. Reached 98% accuracy with a decision tree classifier. [docs] [code] 	
	Titanic , <i>Data Science & Feature Engineering</i> <ul style="list-style-type: none"> Prediction of Titanic survivals as a part of Kaggle competition. Reached an Accuracy of 83% and Recall of 76%. [code] 	
	MNIST-Drawer , <i>Variational Autoencoder</i> <ul style="list-style-type: none"> Implementation of a <i>Variational Autoencoder</i> to draw <i>MNIST</i> dataset characters using <i>Tensorflow</i>. [code] 	
	notMNIST , <i>Convolutional Neural Network</i> <ul style="list-style-type: none"> Implementation of multiple machine learning classifiers and regularization techniques on the <i>notMNIST</i> dataset using <i>Tensorflow</i>. [code] 	
	Freeman , <i>Hardware Programming & Co-design</i> <ul style="list-style-type: none"> Implementation of a <i>Parking Controller & Security Controller</i> using <i>VHDL</i>. [code] 	

Numex, *Functional Programming*

- Implementation of an *Advanced Functional Interpreter* using *Racket*.

[\[code\]](#)

Hornburg, *Deep Learning Basics*

- Implementation of *Principal Machine Learning Algorithms* using *Python*.

[\[code\]](#)

Iris, *Multi-nomial classification*

- Multi-nomial classification of *Iris* dataset using *scikit-learn*.

[\[code\]](#)

ARMHE, *Advanced RISC Machine Programming*

- Implementation of the *Histogram Equalization* algorithm on the *STMF32F407VGT6* with *ARMv4T* architecture using *ARM Assembly*.

[\[code\]](#)

Cinder, *Low Level Programming*

- Implementation of a basic *Operating System* with *C*.

[\[code\]](#)

Chronicle, *Compiler Design*

- Implementation of a *lexical analyzer*, *syntax analyzer* and a *partial code generator* using *Lex & Yacc* in *Java*.

[\[code\]](#)

Sockets, *Socket Programming*

- Implementation of various types of *Sockets* in *Interprocess Communication & TCP/IP Protocol* with *C*.

[\[code\]](#)

Toofan, *Android Application Development*

- Implementation of a *Weather Forecast Application* on the *Android* platform using *Java & Android Studio*.

[\[code\]](#)

Huffman, *Huffman Coding*

- Implementation of the *Huffman Text Compression Algorithm* using *Java*.

[\[code\]](#)

2048, *C++ Programming*

- Implementation of the *2048 Puzzle Game* with various gameplay tweaks using *C++*.

[\[code\]](#)

Manobase, *VHDL Programming*

- Implementation of the *Morris Mano's Base Computer* using *VHDL*.

[\[code\]](#)