

# Ali Gholami

COMPUTER ENGINEERING & INFORMATION TECHNOLOGY DEPARTMENT  
AMIRKABIR UNIVERSITY OF TECHNOLOGY

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EDUCATION	<b>B.S. Computer Engineering @ AMIRKABIR UNIVERSITY OF TECHNOLOGY</b> [Global Rank of 97 in CE] @ USNEWS [National Rank of 2] @ ARWU			GPA: 3.6/4
	<b>Mathematics &amp; Physics Diploma @ KAMAL HIGHSCHOOL</b>			GPA: 19/20
RESEARCH INTERESTS	<ul style="list-style-type: none"><li>• Visual Question Answering</li><li>• Image Segmentation</li><li>• Image Captioning</li><li>• Deep Learning</li></ul>			
RELATED COURSES	<b>Machine Learning @ AMIRKABIR UNIVERSITY OF TECHNOLOGY</b> <b>Computer Vision @ UDACITY</b> <b>Deep Learning @ UDACITY</b> <b>cs231n @ STANFORD UNIVERSITY</b>			
RESEARCH EXPERIENCE	<b>CEIT @ AMIRKABIR UNIVERSITY OF TECHNOLOGY</b> <i>Computer Vision — Pattern Recognition</i>			Dec 2018 – Present
	<ul style="list-style-type: none"><li>• Implementation of <i>AlexNet CNN</i> architecture using <i>Tensorflow</i>.</li><li>• Implementation of a <i>DCGAN</i> to draw <i>MNIST</i> characters using <i>Tensorflow</i>.</li><li>• Implementation of a <i>Variational Autoencoder</i> using <i>Tensorflow</i>.</li><li>• Implementation of various <i>Deep Learning</i> techniques using <i>Tensorflow</i>.</li></ul>			
TECHNICAL REPORTS	<b>Statistical Pattern Recognition</b> <i>Advisor: Prof. Mohammad Rahmati</i> <ul style="list-style-type: none"><li>• <i>Introduction to Linear Algebra – Statistics – Probabilities</i> [docs]</li><li>• <i>LDA &amp; QDA – Bayesian Classification – Error Bounds</i> [docs]</li></ul>			
	<b>Data Mining</b> <i>Advisor: Prof. Ehsan Nazerfard</i> <ul style="list-style-type: none"><li>• <i>Association Rule Mining – Feature Engineering</i> [docs]</li><li>• <i>Decision Tree Classifier – Data Cleaning</i> [docs]</li></ul>			
	<b>Design &amp; Implementation of Programming Languages</b> <i>Advisor: Prof. Mehran S. Fallah</i> <ul style="list-style-type: none"><li>• <i>Induction &amp; Denotational Semantics – Lambda Calculus</i> [docs]</li><li>• <i>Lisp &amp; Garbage Collection – Higher-order Functions</i> [docs]</li><li>• <i>Algol &amp; Meta Language – ML Data Types &amp; Patterns</i> [docs]</li><li>• <i>Type Safety &amp; Type Inference – Polymorphism</i> [docs]</li></ul>			
	<b>Computer Networks</b> <i>Advisor: Prof. Siavash Khorsandi</i> <ul style="list-style-type: none"><li>• <i>Introduction to Computer Networks</i> [docs]</li></ul>			

	<ul style="list-style-type: none"> <li>• <i>Packet Transmission Approaches – Congestion Control</i> <a href="#">[docs]</a></li> <li>• <i>Queuing &amp; Delay Analysis</i> <a href="#">[docs]</a></li> <li>• <i>Queuing &amp; Delay Analysis – Network Protocols</i> <a href="#">[docs]</a></li> </ul>	
	<b>Multi-core Programming</b> <i>Advisor: Prof. Mahmoud Momtazpour</i> <ul style="list-style-type: none"> <li>• <i>Parallel Architectures – Speedup Metrics</i> <a href="#">[docs]</a></li> </ul>	
<b>WORK EXPERIENCE</b>	<b>Internship @ ARVAN CLOUD</b> Jun – Sep 2017 <i>Web Application Development</i> <ul style="list-style-type: none"> <li>• <i>HTML, CSS, PHP, Laravel, Javascript, ECMAScript, Node.js, Vue.js, React.js</i></li> </ul>	
	<b>Internship @ FANDOGH</b> Jun – Aug 2017 <i>Mobile Application Development</i> <ul style="list-style-type: none"> <li>• <i>Java, React Native</i></li> </ul>	
<b>TEACHING EXPERIENCE</b>	<b>T.A. @ CEIT @ AMIRKABIR UNIVERSITY OF TECHNOLOGY</b> Sep – Dec 2017 <i>Microprocessors &amp; Assembly Programming</i> <i>Advisor: Prof. Mahdi Homayounpour</i>	
	<b>T.A. @ ENG @ KHARAZMI UNIVERSITY OF TEHRAN</b> Sep – Dec 2015 <i>Foundations of Programming in C++</i> <i>Advisor: Dr. Azadeh Mansouri</i>	
<b>TALKS</b>	<b>Machine Learning at Scale</b> Oct 2017 <ul style="list-style-type: none"> <li>• Based on the paper <i>Rules of Machine Learning</i> by <a href="#">Dr. Martin Zinkevich</a>.</li> </ul>	
	<b>Energy Awareness</b> July 2017 <ul style="list-style-type: none"> <li>• Based on the paper <i>Energy-aware adaptation for mobile applications</i> by <a href="#">Dr. Jason Flinn</a>.</li> </ul>	
	<b>Metasploit Framework</b> May 2017 <ul style="list-style-type: none"> <li>• Introduction to <i>Metasploit Framework &amp; Social Engineering</i> techniques.</li> </ul>	
<b>HONORS</b>	<b>Admitted to Amirkabir University of Technology</b> among all Aug 2018 bachelor students at Computer Engineering Department, Kharazmi University of Tehran.	
	<b>Ranked top 3</b> among all bachelor students at Computer Engineering July 2016 Department, Kharazmi University of Tehran.	
	<b>Ranked top 0.006</b> in the Nationwide University Entrance Exam July 2014 among all students in Mathematics and physics (approximately 250,000).	
<b>SKILLS</b>	<b>Languages</b> Persian ( <i>native</i> ), English ( <i>advanced working proficiency</i> )	
	<b>Programming</b> Python, VHDL, C/C++, Java, ARM Assembly, AVR Assembly, Javascript, HTML/CSS, L <sup>A</sup> T <sub>E</sub> X, Racket, ML, Scheme.	
	<b>Tools &amp; Platforms</b> Tensorflow, scikit-learn, Numpy, Pandas, Matplotlib, Weka, Arduino, ARM, AVR, CodeVision, Xilinx Vivado, ModelSim, Atmel Studio, Ca-	

dence *PSPice*, *Keil*, *Dr. Racket*, *MongoDB*, *PostgreSQL*, *MySQL*, *Visual Studio*, *TeXstudio*.

## NOTABLE PROJECTS

### Annealing, *Data Cleaning & Preprocessing*

- Preprocessing and cleaning the dataset of annealing. Reached 98% accuracy. [\[docs\]](#) [\[code\]](#)

### Titanic, *Data Science & Feature Engineering*

- Prediction of Titanic survivals as a part of Kaggle competition. Reached an Accuracy of 83% and Recall of 76%. [\[code\]](#)

### MNIST-Drawer, *Variational Autoencoder*

- Implementation of a *Variational Autoencoder* to draw *MNIST* dataset characters using *Tensorflow*. [\[code\]](#)

### notMNIST, *Convolutional Neural Network*

- Implementation of multiple machine learning classifiers and regularization techniques on the *notMNIST* dataset using *Tensorflow*. [\[code\]](#)

### Freeman, *Hardware Programming & Co-design*

- Implementation of a *Parking Controller & Security Controller* using *VHDL*. [\[code\]](#)

### 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*. [\[code\]](#)

### 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*. [\[code\]](#)