Ali Gholami

Contact Information

Computer Eng. Dept.,
Amirkabir University of Technology
Hafez St., Tehran, Iran

Voice: (+98) 939 6191 804
Email: hexpheus@gmail.com
https://hexpheus.github.io

Education

Amirkabir University of Technology, Tehran, Iran
B.Sc. in Software Engineering — **Oct. 2014 – Present**

- Advisor: Mohammad Rahmati
- Cumulative GPA: **17.55/20 (3.64/4.00)**
- Last Year GPA: **17.80/20 (3.90/4.00)**
- Selected Courses GPA: **18.74/20 (4.00/4.00)**

Kamal Highschool, Tehran, Iran
Diploma in Mathematics & Physics — **Oct. 2012 – Jun. 2014**

- Cumulative GPA: **19.58/20**

Research Interests

- 3D Reconstruction & Segmentation
- Neuroscientific Deep Learning
- Visual Question Answering
- Virtual Augmented Reality
- Radiogenomics & Medical Imaging
- Quantitative Imaging Biomarkers
- Tissue & Cell Morphogenesis
- DNA & RNA Sequencing

Research Experience

Low Power Digital Systems Lab, Amirkabir University of Technology
Research Assistant — **Sep. 2018 – Present**

- *Advisor: Mahmoud Momtazpour*
- Developing algorithms for Arrhythmia classification in multi-channel ECG Signals.

Bio-Intelligence Research Unit, Sharif University of Technology
Research Assistant — **Jun. 2018 – Present**

- *Advisor: Ali Ghazizadeh*
- Developing algorithms for detection, localization and segmentation of diseases in lung magnetic resonance images.
- Developed algorithms for visualization and generation of class activation maps in convolutional neural networks.
- Implementation of novel convolutional neural network architectures with Tensorflow.

Machine Learning Lab, Amirkabir University of Technology
Research Scientist — **Sep. 2017 – Jun. 2018**

- *Advisors: Mohammad Rahmati, Mahmoud Momtazpour & Reza Safabakhsh*
- Designed & Developed a real-time face recognition system based on the maximum likelihood approximate nearest neighbor method.
- Developed an image template matching algorithm with *CUDA* technology.
- Explored novel convolutional & recurrent neural network architectures in visual question answering and image captioning.

Work Experience

ArvanCloud, Tehran, Iran
Web Development Internship — **Jun. 2017 – Sep. 2017**

- Developed an administrative panel for an smart lock system using PHP and Laravel.

Fandogh, Tehran, Iran
Android Development Internship **Jun. 2017 – Sep. 2017**

- Design & implementation of a weather forecast application with *Java SE* & *Android Studio*.
- Development of a poetry application with *React Native*.

Honors & Awards

Ranked top 10 Among the Class of 2014, Department of Computer Engineering, Amirkabir University of Technology. **Aug. 2018**

Ranked top 3 Among the Most Active GitHub Developers in Iran. (Based on *https://commits.top/iran.html*) **Jul. 2018**

Admitted to the Class of 2014, Department of Computer Engineering, Amirkabir University of Technology. **Oct. 2016**

Ranked top 3 Among the Class of 2014, Department of Computer Engineering, Kharazmi University of Tehran. **Aug. 2016**

Ranked top 0.6% in the Nationwide University Entrance Exam, Among all Students (Approx. *270,000*) in Mathematics & Physics. **Jul. 2014**

Elected as the Tidiest Student at the Campus of International Summer School, *Institute Monte Rosa*, Montreux, **Switzerland**. **Jun. 2012**

Programming Languages

Languages: *Python, C/C++, Java SE, VHDL, ARM Assembly, AVR Assembly, Racket, ML, Scheme, HTML/CSS, Javascript, Latex.*

Frameworks and Environments: *Keras, Tensorflow, Numpy, Matplotlib, Pandas, RapidMiner, Weka, OpenMP, CUDA, React Native, Node.js, Laravel.*

Databases: *MongoDB, MySQL, PostgreSQL.*

Teaching Experience

Teaching Assistant, Amirkabir University of Technology
Foundations of Data Mining **Sep. 2018 – Present**

- Advisor: Maryam Amirmazlaghani

Teaching Assistant, Amirkabir University of Technology
Microprocessors and Assembly Language **Sep. 2017 – Dec. 2017**

- Advisor: Mohammad Mehdi Homayounpour

Teaching Assistant, Kharazmi University of Tehran
Foundations of Programming **Sep. 2015 – Dec. 2015**

- Advisor: Azadeh Mansouri

Selected Courses

Pattern Recognition:	17/20	**Machine Learning**:	19.5/20
Data Mining:	18.7/20	**Technical Research**:	17.6/20
Data Structures:	18.5/20	**Algorithm Design**:	19.31/20
Engineering Statistics:	18.5/20	**Engineering Mathematics**:	19/20
Software Engineering:	17.5/20	**Microprocessors**:	19.42/20
Computer Aided Design:	17.4/20	**Engineering Ethics**:	20/20
Systems Analysis & Design:	19.68/20	**Digital Design**:	20/20

English Proficiency

TOEFL: *Registered to take the test on October 14.*
TOEFL: *Test score for August 4th:* ***91*** *(20/25/22/24)*

Technical Reports

A. Gholami, "*Real-time Face Recognition Based on the Maximum Likelihood Approximate Nearest Neighbor Method*," Faculty of Computer Engineering, Amirkabir University of Technology, Tehran, Iran, Statistical Pattern Recognition Final Project Report, Jul. 2018.

A. Gholami, "*Implementation of A Naive Template Matching Algorithm with CUDA Technology*," Faculty of Computer Engineering, Amirkabir University of Technology, Tehran, Iran, Multu-core Programming Final Project Report, Apr. 2018.

A. Gholami, "*Linear Discriminant Functions, Support Vector Machine and Unsupervised Learning*," Faculty of Computer Engineering, Amirkabir University of Technology, Tehran, Iran, Statistical Pattern Recognition Coursework Report, Jun. 2018.

A. Gholami, "*Dimensionality reduction strategies; Principal Component Analysis, Fisher Linear Discriminant and Feature Subset Selection*," Faculty of Computer Engineering, Amirkabir University of Technology, Tehran, Iran, Statistical Pattern Recognition Coursework Report, Feb. 2018.

A. Gholami, "*Parametric and Non-parametric methods; Maximum Likelihood and Bayesian Parameter Estimation and Kernel Density Estimation*," Faculty of Computer Engineering, Amirkabir University of Technology, Tehran, Iran, Statistical Pattern Recognition Coursework Report, Jan. 2018.

A. Gholami, "*Analysis of Bayesian Decision Boundaries, Risk Minimization and Bayes Error Bounds*," Faculty of Computer Engineering, Amirkabir University of Technology, Tehran, Iran, Statistical Pattern Recognition Coursework Report, Dec. 2017.

More available on https://hexpheus.github.io/publications.

Notable Projects

Implementation of the SimpNet convolutional neural network architecture in Python & Tensorflow.

Implementation of a real-time face recognition system based on the maximum likelihood approximate nearest neighbor method in Tensorflow & OpenCV.

Implementation & optimization of a fast naive image template matching in CUDA.

Implementation of the AlexNet convolutional neural network architecture in Tensorflow.

Implementation of 1D & 2D kernel density estimation & visualization in Python.

Implementation of a pure functional programming language interpreter in Racket.

Implementation of a wireless network using nRF24L01 and Arduino UNO.

Implementation of the histogram equalization algorithm on the STMF32F407VGT6 with ARMv4T architecture using ARM assembly.

Co-design of a smart parking system in VHDL and C.

Implementation of a weightless neural network library in Python. (ongoing)

More available on https://github.com/hexpheus.

References

Prof. Ali Ghazizadeh
Faculty of Electrical Engineering, Sharif University of Technology
Email: alieghazizadeh@gmail.com
Phone: (0098-21) 66164364

Prof. Mohammad Rahmati
Faculty of Computer Engineering, Amirkabir University of Technology
Email: rahmati@aut.ac.ir
Phone: (0098-21) 64542741

Prof. Mohammad Mehdi Homayounpour
Faculty of Computer Engineering, Amirkabir University of Technology
Email: homayoun@aut.ac.ir
Phone: (0098-21) 64542722

Prof. Maryam Amirmazlaghani
Faculty of Computer Engineering, Amirkabir University of Technology
Email: mazlaghani@aut.ac.ir
Phone: (0098-21) 64542704

Prof. Mahmoud Momtazpour
Faculty of Computer Engineering, Amirkabir University of Technology
Email: momtazpour@aut.ac.ir
Phone: (0098-21) 64542721