Abolfazl Danayi

Academic Resume

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"Knowledge is the root of all good." Imam Ali

Education

2020-now   **PhD in Telecommunication Systems**, *University of Tehran.*
Current

2017-2019   **M.Sc. in Digital Electronic Systems**, *Amirkabir University of Technology.*
Total GPA: 17.86/20

2013–2017   **B.Sc. in Electrical Engineering**, *Amirkabir University of Technology.*
Total GPA: 18.69/20
Ranked 3rd, among Electronics group graduated students. (By total GPA)

2009–2013   **Physics and Mathematics**, *National Organization for Development of Exceptional Talents (NODET) High school, Mashhad, Iran.*
Total average: 19.86/20

Research Interests

1. Biomedical Signal Processing (BSP)
2. Brain-Computer Interfacing (BCI)
3. Cloud-based Signal Processing
4. Cloud Computing
5. Quantum Computing

Publications

2019   **"openCoT: The opensource Cloud of Things platform"**, A.Danayi, S.Sharifian, *arXiv pre-print*, Source-code available on GitHub.
[Link to this content]

2018   **"PESS-MinA: A Proactive Stochastic Task Allocation Algorithm for FaaS Edge-Cloud environments"**, A.Danayi, S.Sharifian, *ICSPIS 2018 (IEEE)*, Tehran, Iran.

2018   **"A novel algorithm based on time-frequency analysis for extracting melody from human whistling"**, A.Danayi, S.Seyedin, *ICSPIS 2018 (IEEE)*, Tehran, Iran.

2018   **"uProcessors Lab: A guide to ARM cortex-M microcontrollers"**, A. Danayi, *Self published voluntary lecture-notes booklet*, Amirkabir university of Technology.
[Link to this content]

2016   **"The challenge of complicated processing in embedded systems as a support for IoT (Persian)"**, S.Gholami, A.Danayi, M.Barzegari, H.Bayani, *The international conference of applications and infrastructures of IoT*, University of Isfihan, Isfihan, Iran, COI (Index): IOTCONF01_014.
[Link to this content]

Honors (Highlights)

2021   **Co-Founder of LMUX Team**, *RahatWeb service is based on the master's thesis*, [Link to website].

2019   **The best teacher of the EE department**, *1st Ranked (of 43) teacher in the Electrical Engineering department.*

2017   **Direct M.Sc. Award**, *Granted studying M.Sc. in Digital Electronics without participating university entrance exam as a reward for bachelor rank*, Amirkabir University of Technology, Tehran, Iran.

2017   **Ranked 3rd**, *in Electrical Engineering, Electronics group*, Amirkabir university of Technology, Tehran, Iran.

2015 **The head of technical committee**, *Appreciated by IEEE Iran-section as "The head of technical committee" of Autronics 2015*, National Autronics Electronics competitions.

2014 **University elite student**, *Granted monthly fund by national elites of Iran institute as a "University elite student"*, National elites institute, Iran.

2013 **Ranked 391st**, *in university entrance exam (Konkour), among more than 300,000 participants*.

Academic Experience (Highlights)

M.Sc. Thesis

Current **A Proactive Elastic Micro-service scheduling algorithm for cloudlets in IoT applications**, *Under supervision of Dr. S. Sharifian*, Amirkabir university of Technology, Tehran, Iran.

B.Sc. Thesis

2017 **Extracting Piano notes from human whistling**, *Under supervision of Dr. S. Seyedin*, Amirkabir university of Technology, Tehran, Iran.

Teaching

2019 **Microprocessors lab. course teacher**, Amirkabir university of Technology, Tehran, Iran.
[Link to this content]

2018 **Microprocessors lab. course teacher**, Amirkabir university of Technology, Tehran, Iran.
[Link to this content]

Teaching assistance

2018 **Microprocessors and Interface Circuits**, *Dr. S. Sharifian*, Amirkabir university of Technology, Tehran, Iran.

2017 **Microprocessors and Interface Circuits**, *Dr. S. Sharifian*, Amirkabir university of Technology, Tehran, Iran.

Workshops

2019 **Statistical analysis of Web-Sites using Python**, EESA.
[Link to this content]

2016 **Image processing on Embedded devices**, Tehran Software Freedom Day festival (TehSFD), Sharif university of Technology, Tehran, Iran.
[Link to this content]

Selected Academic Projects

Spring 2018 **Wavelet based haze-removal algorithm implementation**.
*Implemented a **Symlet** based **image enhancement** algorithm in order to enhance hazy images.*
Wavelet processing course, Dr. H. Amindavar
[Link to this content]

Spring 2018 **Generative Adversarial Nets Representation**.
*Presented seminar project survey research about Generative Adversarial Nets including **GANs**, **C-GANs**, **DC-GANs**, etc. to the class.*
Machine learning course, Dr. S. Seyedin
[Link to this content]

Spring 2018 **Low-level implementation of MLP**.
*Low level implementation of **Back-propagation** and evaluation of a MLP (softmax last layer), using **numpy** in python.*
Machine learning course, Dr. S. Seyedin

Fall 2017 **Implementation of QGA and CSA**.
*Implementation of **Quantum Genetics Algorithm** and **Cuckoo Search Algorithm** in Python. Used QGA to **search the best meta-parameters set for a NN classification problem (3 layer MLP)**.*
Bio-inspired machine learning, Dr. S. Sharifian

Summer 2017 **Implementation of CNN for EEG motor-imagery classification**.
*Implemented a **Convolutional Neural Net** as a voluntary project, in order to help a researcher team.*
IPM (Institute for Research in Fundamental Sciences)

Spring 2017 **Implementation of C-GAN**.
*Implementation of **Conditional Generative Adversarial Networks** in Python. Used two MLP networks as Generative and Discriminative nets. Used MNIST and CIFAR-10 Datasets*
"Statistical machine learning", Dr. V. Pourahmadi

Winter 2016 **Implementation of HAAR-Cascade Hand detection algorithm**.
*Implementation **wavelet based** HAAR-Cascade **image object detection** algorithm in Python, using **openCV**.*
Advanced programming, Dr. A. Jahanshahi

Skills

Programming and Development
- Matlab/C++/C/Python programming, *Skilled*
- GUI development using Qt (C++) and PyQt, *Skilled*
- Backend development with FLASK, *Skilled*
- Web Application development with ReactJS, *Skilled*
- Development on (and for) Linux and Embedded Linux, *Experienced*
- Frontend development, *Experienced*
- Java/C#/R/Go, *Familiar*

DSP and ML Implementation
- Google **Tensorflow** deep-learning programming (Python)
- High Performance Digital Signal Processing (MATLAB/C++/Python)
- Real-Time Digital Signal Processing on ARM Cortex-M: CMSIS
- Image Processing using **openCV** (Python) platform
- Familiar with R language
- Familiar with Verilog and FPGA development

Embedded systems development
- ARM cortex-M: CMSIS, HAL, MBED
- Arduino platform
- ARM cortex-A: Embedded Linux based devices programming
- PCB Design

Cloud Computing
- Docker engine
- ZeroMQ (Python)

Writing and presentation applications
- LaTeX, Microsoft Word, Microsoft Visio
- Microsoft Excel
- Microsoft Powerpoint

Highlighted Courses
- Statistical Pattern Recognition: 20
- Stochastic Processes: 15.9
- Image Processing: 19.25
- Statistical Machine Learning Theory: 18.3 (Top-mark)
- Machine learning: 20
- Wavelet Processing: 17.7 (Top-mark)
- Multimedia systems: 19.1
- Digital Signal Processing: 19.1
- Probability and statistics: 20

References

Dr. H. Amindavar, Professor of Electrical Engineering, Amirkabir University of Technology
[Link to personal webpage]

Dr. S. Sharifian, Assistant Professor of Electrical Engineering, Amirkabir University of Technology
[Link to personal webpage]

Dr. S. Seyedin, Assistant Professor of Electrical Engineering, Amirkabir University of Technology
[Link to personal webpage]

Dr. V. Pourahmadi, Assistant Professor of Electrical Engineering, Amirkabir University of Technology
[Link to personal webpage]

Dr. A. Jahanshahi, Assistant Professor of Electrical Engineering, Amirkabir University of Technology
[Link to personal webpage]