

# Farrokh Karimi

AI Researcher and Hardware, Software Developer at IPM, SUT and Part AI Co.



## Personal Info (Last update : 2019 Jan.)

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**Location** : Tehran / Isfahan

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## Interests

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- **Artificial Intelligence** : Machine Learning, Neural Networks, Deep Learning, Image Processing and Machine Vision, Neuroscience
- **Digital Electronic Systems** : HPC and Parallel Processing, Cloud Computing and Virtualization, Internet of Things and Embedded Systems



## Education

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- [Sharif University of Technology \(SUT\)](#) Tehran  
Research Assistant at Bio-intelligence Center 2018 to present
- [Amirkabir University of Technology \(AUT\)](#) Tehran  
M.Sc. in Digital Electronic Systems Graduated in 2018 Feb.
- [Mohajer Technical University \(MTU\)](#) Isfahan  
B.Sc. in Electronic Engineering Graduated in 2014 Sep.
- [Mohajer Institute of Technology \(SIT\)](#) Tehran  
A.Sc. in Electronic Graduated in 2012 Jan.



## Main Academic Courses

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- **M.Sc. Courses** Digital Signal Processing, Advanced Microprocessor, Artificial Neural Networks, Advanced Instrumentation, Machine Learning, Statistical Pattern Recognition, Digital Image Processing (Audited), Data Communication Networks, Machine Vision, Internet of Things (Audited), Deep Learning (Coursera), High Performance Computing (Coursera)
- **B.Sc. Courses** Electronic Circuits, Microprocessor, Telecommunication Systems, Instrumentation, Electrical Circuits, Microcontroller, Electrical Machines, Industrial Electronics, TV systems, Technic Pulse, Linear Integrated Circuits, PLC Programming, Computer Programming, Digital Electronic Systems, Numerical Calculation, Linear Control Systems, Microcomputer, Signals and Systems, Electromagnetics, Industrial Controllers, Computer Networks

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## Publication

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- Good Practices to Human Activity Recognition in Video (in preparation) 2018



## Teaching Experiences

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- Talk on Parallel Processing Hardware at Amirkabir University of Technology. Tehran 2019 Jan.
- Lecture on Super Computing and Parallel Processing applications in Deep Learning at Part Artificial Intelligence Research Center Summer School. Tehran 2018 Aug.
- Teaching Advanced Programming with Python at Alzahra University. Tehran 2018 Jul. to Aug.
- Teaching Image Processing and Machine Vision with Python and OpenCV at Shariaty Technical University. Tehran 2017 Jul. to Aug.
- Teaching Robotic at Afarinesh Institute. ShahinShahr 2013



## Conferences

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- Lecturing an one-day workshop on Image Processing with Python and OpenCV on RaspberryPi in the 10th Iranian conference on Machine Vision and Image Processing at Isfahan University of Technology. Isfahan 2017 Nov.



## Work Experiences

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- *Researcher* at [IPM Brain Engineering Center](#). Tehran 2018 to Present
- *Hardware, Software Developer and DevOps engineer* at [Part Artificial Intelligence Research Center](#). Tehran 2018 to Present
- *R&D Researcher and Hardware, Software Developer* at [Crouse Industrial Company](#). Tehran 2015 to 2017
- *PLC Programmer* at Akhtar Niroo Neghshejahan Co. Isfahan 2014
- *Technician* at Isfahan Refinery Instrumentation Part. Isfahan 2011
- *Electronic Designer* at Parto Co. Isfahan 2008 to 2015

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## Academic and Work Projects

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- Assemble and Configure a GPU server for Amirkabir University of Technology, Machine Vision Lab. AUT MVL 2018
- Setting up a ZedBoard (a board based on FPGA). AUT ACSAT 2018
- Assemble and Configure a GPU server for Sharif University of Technology, Bio-intelligence Center. SUT 2018
- Design an API with Python Flask. Part 2018
- Lung diseases (Such as Sarcoidosis) Diagnosis using Image Processing Methods based on Deep Neural Networks SUT 2018 to Present
- Setting up a Hospital Management System based on Artificial Intelligence in Massih Daneshvari Hospital of Tehran. IPM 2018 to Present
- Setting up a powerful and cost-efficient server for Deep Learning projects based on NVidia SLI (Scalable Link Interface) technology and HPC methods. Part 2018 to Present
- Human Complex Activity Recognition using Deep Neural Networks (**M.Sc. Project**). AUT 2016 to 2018
- Developing Ubilinux kernel for UpBoard Embedded System. Crouse 2017
- Image alignment and camera motion compensation using Machine Vision algorithms with Python and OpenCV. Crouse 2017
- Cluster's needle angle and value calculation based on Image Processing using RaspberryPi with Python and OpenCV. Crouse 2016 to 2017
- Camera feature extraction and setting parameters on Linux and Windows with Python and OpenCV. Crouse 2016
- Hospital Management System based on IoT. IoTcup 2016
- Design a product development process. Crouse 2016
- Human skeleton detection using Microsoft Kinect with LabVIEW. AUT 2016
- Design a safety life-cycle analysis process. Crouse 2016
- Fault Mode, Effects and Diagnostic Analysis (FMEDA) for ACU's Hardware. Crouse 2015 to 2016
- Control and monitoring of 9 DoF navigation system based on MEMS technology using Matlab (**B.Sc. Project**). MTU 2014
- Smart parking based on IoT using IR sensors (**A.Sc. Project**). SIT 2011 to 2012

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## Honors and Awards

- 2<sup>nd</sup> place in Fanavard National Competition in OSINT (Open Source INTelligence) at Sharif University of Technology. Tehran 2016
- Selected participant in Fanavard National Competition in microcontroller programming at Sharif University of Tehcnology. Tehran 2015
- The winner of the top idea in open-exhibition league in national robotic competition at Mohajer Technical University. Isfahan 2014
- 1<sup>st</sup> rank in light finder league in Regional robotic competition. ShahiSahr 2008



## Languages

Persian ★★★★★

English ★★★★★☆

Arabic ★★☆☆☆☆



## Skills

- **OS** Window ●●●●○ Linux ●●●●○
- **Hardware** Embedded Systems (RaspberryPi and, UpBoard) ●●●○○  
Micro-computers (FPGA and SoC) ●●○○○  
Micro-controllers (AVR and, ARM) ●●○○○  
PLC ●●○○○ Sensing ●●○○○  
Kinect ●●●○○ NetWork ●●●○○
- **Software** LabVIEW ●●○○○ MatLab ●●○○○  
Altium Desinner ●●○○○ Microsoft Office ●●●●○  
Photoshop ●●●○○
- **Programming Languages** Python ●●●●○ C++ ●●○○○  
Assembly ●○○○○
- **Programming Libraries** OpenCV ●●●●○ Keras ●●●●○  
TensorFlow ●●●●○ PyTorch ●●○○○  
Flask ●●●●○ Redis ●●○○○



## Other Skills

- **Git** and version control.
- **Scrum** based on agile frameworks (**Trello**).
- System Development and, Product Management (V-Model or, V-Cycle).
- Safety Life-Cycle Analyses (FMEA, FMEDA) and, HSE.
- OSInt (Open Source Intelligence).



## Personality Characteristics

- Active, Creative, Adaptable, Punctual, Faithful, Truthful, Courageous, Polite

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## Hobbies

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- Sport (Mount/Rock/Ice-climbing, Swimming, Football and Chess), Astronomy, Photography and, Listening to Music.



## References

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- Dr. Ali Ghazizadeh, Assistant Prof. in EE at **SUT** [ghazizadeh@sharif.edu](mailto:ghazizadeh@sharif.edu)
- Dr. Reza Lashgari, Assistant Prof. in **IPM** [rezalashgari@ipm.ir](mailto:rezalashgari@ipm.ir)
- Dr. Karim Faez, Prof in EE at **AUT** [kfaez@aut.ac.ir](mailto:kfaez@aut.ac.ir)
- Dr. Mohammad Sabokrou, CTO at **Part** [mohammad.sabokrou@partdp.ai](mailto:mohammad.sabokrou@partdp.ai)
- Mohammad Tajik, CTO at **Crouse** [m.tajik@crouse.ir](mailto:m.tajik@crouse.ir)