# SAREH SOLTANI NEJAD

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## EDUCATION

**Amirkabir University of Technology**, Tehran, Iran
*B.Sc. in Computer Engineering* **Sep. 2014 – Jun. 2019**

- GPA (last **3** semesters): 3.71/4
- GPA (selected courses): **3.92/4**
- Thesis: Design and Implementation of a Real-Time Object Tracking system

**Farzanegan High School**, Kerman, Iran
*Diploma in Mathematics & Physics* **Oct. 2010 – Jun. 2014**

- National Organization for Development of Exceptional Talents (NODET)
- Cumulative GPA: **19.92/20**

## RESEARCH INTERESTS

- Internet of Things
- Computer Networks
- Wireless Networks
- Cloud Computing
- Embedded Systems
- Machine Learning

## RESEARCH EXPERIENCE

**IoT Research Center**, Amirkabir University of Technology
*Research Assistant* **Aug. 2019 – Present**

- Advisor: Dr. Mahdi Rasti
- Research on IoT platforms and LoRa Technology, Work on AUT IoT Gateway Project.

**Internet of Things Lab (Aolab)**, Amirkabir University of Technology
*Research Assistant* **Oct. 2018 – Jun. 2019**

- Advisor: Dr. Bahador Bakhshi
- Developed a Real-Time Object Tracking system using GPS, GSM Modem and SIM808 module.

**Embedded and Real-Time System Lab**, Amirkabir University of Technology
*Research Assistant and Teaching Assistant* **Sep. 2017 – Dec. 2018**

- Advisors: Dr. Hamed Farbeh, Dr. Hossein Pedram
- Design and grading projects and homeworks of Embedded System course.
- Implementation several projects with the mbed platform on the FRDM-KL25Z board.

**Research Methods Course**, Amirkabir University of Technology
*Researcher* **Sep. 2016 – Dec. 2016**

- Research on using a Wireless Sensor Network (ZigBee) in smart home for elderly care.
- Technical report and a poster of the subject (In Persian)

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

- Advisors: Dr. Mahmoud Momtazpour, Dr. Maryam Amir Mazlaghani
- Developed an image template matching algorithm with *CUDA* technology.
- Implementation of image compression in Matlab using Principal Component Analysis (PCA).
- Implementation of Linear Regression in Matlab using Gradient Descent algorithm.

**Digital System Design lab (DSD lab)**, Amirkabir University of Technology
*Research Assistant* **Jun. 2016 – Mar. 2017**

- Advisors: Dr. Hamidreza Zarandi
- Co-design and hardware implementation on FPGA.

## HONORS

- **Ranked in top 5** Computer Hardware Engineering Students **2015 – 2019**
- **ACM ICPC** Executive Staff – 18'th, 17th & 15th Contest **Nov. 2018, 2017, 2015**
- **Eligible** to study in two fields simultaneously **Jun. 2015**
- **Ranked 260th** out of 230,000, nationwide university entrance exam.(*Mathematics*) **Jul. 2014**
- **Ranked 641th** out of 120,000, nationwide university entrance exam.(*Foreign Languages*) **Jul. 2014**
- **Selected** for study in schools of National Organization for Development of Exceptional **Jul. 2010** Talents (**NODET**) through an exam with less than 1% acceptance rate.

## NOTABLE PROJECTS & TECHNICAL REPORTS

- **Real-Time Object Tracking System**, "*Implementation of a GPS-GSM Tracking System, Monitored in a Mobile App based on Google Map,*" B.Sc. Project Report, Jun. 2019.
- **Classical and Local Search algorithms** "*Implementation of these algorithms for solving several problems: Jealous Husband, Sliding Puzzle, Chess Game, Balanced Queue, Rubik Cube, Graph Coloring,*" Artificial Intelligence Final Project Report, Dec. 2018.
- **Fast Naive Image Template Matching with CUDA**, "*Implemented the Template Matching algorithm in CUDA (and OpenMP), on a dataset of coin/face images. Parallel Processing using GPU allowed this algorithm to operate more efficiently and provided an acceptable speedup compared to the serial implementation,*" Multi-core Programming Final Project Report, May. 2018.
- **Solar Tracker System,** "*Design and Implementation of a solar tracker system using two servo motors, 6 light sensors and Arduino board to rotate the solar panel towards the Sun or a source of light,*" Interface Circuit Design Course, Jun. 2018.
- **Automated Steering Control,** Linear Control Systems Final Project Report, Jun. 2018
- **Image Compression,** "*Implement Principal Component Analysis (PCA) using SVD in MAtlab for image compression,*" Engineering Mathematics Final Project Report, Jun. 2017.
- **Linear Regression by using Gradient Descent Algorithm,** Engineering Mathematics, Jun. 2017

## TEACHING ASSISTANTSHIPS

- **Artificial Intelligence**, *Dr. Ahmad Nickabadi* **Dec. 2019 – Jun. 2019**
- **Internet Engineering**, *Dr. Bahador Bakhshi* **Dec. 2019 – Jun. 2019**
- **Embedded and Real-Time systems**, *Dr. Hamed Farbeh* **Sep. 2018 – Dec. 2018**
- **Engineering Mathematics**, *Dr. Maryam Amir Mazlaghani* **Sep. 2017 – Dec. 2017**
- **Electronic Digital**, *Dr. Hamed Farbeh* **Sep. 2017 – Dec. 2017**
- **Data Structure and Algorithms**, *Dr. Mehdi Dehghan* **Sep. 2016 – Dec. 2016**
- **Electrical Circuit**, *Dr. Mehdi Siavash Khorsandi* **Sep. 2016 – Dec. 2016**

## TALKS AND PRESENTATIONS

**Design and Implementation of a Real-Time Object Tracking System** **Jun. 2019**
*B.Sc. thesis presentation*

**Practical Front-end Design and Development using Vue and Nuxt.js** **May. 2019**
*Workshop Lecturer, Amirkabir University of Technology*

**Using a Wireless Sensor Network in Smart Home for Elderly Care** **Jun. 2017**
*Research and Technical Presentation Course*

## WORK EXPERIENCE

**Carpino company**, **Web Developer** **Feb. 2019 – May. 2019**

- Developed an organizational panel for a navigation system using Nuxt and Node.js.

**Samsung AUT Tech., Web Development Internship** **Jun. 2017 – Sep. 2017**

- Developed several projects with Vue.js framework.

**Tarbiat Modares University**, **Software Engineer** **Nov. 2016 – Feb. 2017**

- Design of staff assessment portal for Tarbiat Modares University using PHP

**E-Farda (*E-commerce company*)**, **Web Development Internship** **Jun. 2016 – Sep. 2016**

## ATTENDED WORKSHOPS

**Deep Learning in Neuroscience,** 1'st Neuroscience Symposium **Feb. 2019 – Feb. 2019**
*Sharif University of Technology*

**Introduction to FPGA**, Co-design and hardware implementation **Mar. 2016 – Mar. 2016**
*Amirkabir University of Technology*

## TECHNICAL & PROGRAMMING SKILLS

**Programming Languages:**
C, Python, Java, JavaScript, Cuda, OpenMP, MATLAB, HTML, PHP, MySQL, MongoDB
**Frameworks:**
LoRaWAN, Vue.js, Express with Node.js, Laravel
**Network Simulation Tools:**
Bosson, Wireshark
**Hardware Development & CAD Tools:**
VHDL, Assembly, PSPICE, HSPICE, Modelsim, Vivado Design Suite, Xilinx ISE Design Suite, Proteus
**Operating Systems:**
Linux, Microsoft Windows
**Softwares and Tools::**
GitHub, VisualStudio, PyCharm, VSCode, LATEX, HspiceArduino, SIM808 Module, GPS, GSM, Bluetooth chip, Light sensor

## SELECTED COURSES

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|---|---|---|---|
| **Artificial Intelligence**: | *4/4* | **Data Communications**: | *4/4* |
| **Data Structure**: | 4/4 | **Engineering Mathematics**: | 4/4 |
| **Engineering Statistics**: | 4/4 | **Embedded & Real-Time Systems**: | 4/4 |
| **Mutli-core Programming**: | *3/4* | **Design of Algorithms**: | *4/4* |
| **Operating Sys. Design**: | 4/4 | **Computer Arch.**: | 4/4 |
| **Research & Technical Presentation**: | 4/4 | **Internet Engineering**: | 4/4 |
| **Theory of Machines**: | 4/4 | **Microprocessor & Assembly Language**: | 4/4 |
| **Linear Control Sys.**: | 4/4 | **Computer Internship**: | 4/4 |
| **Computer Architecture Project**: | 4/4 | **Information Technology Project Management**: | 4/4 |
| **Principles of Database Design**: | 3/4 | **Technical English**: | 4/4 |
| **Electronic Circuits**: | 4/4 | **Special Topics (StartUp)**: | 4/4 |
| **Electric Circuit**: | 4/4 | **CE Labs**: | 4/4 |

## REFEREES

- **Dr. Bahador Bakhshi** Professor of Computer Engineering, Amirkabir University of Technology
  ✉ bbakhshi@aut.ac.ir
- **Dr. Siavash Khorsandi** Professor of Electrical Engineering, Sharif University of Technology
  ✉ khorsandi@aut.ac.ir