# SAREH SOLTANI NEJAD

Dept. of Computer Engineering & IT, Amirkabir University of Technology, 424 Hafez Ave, Tehran, Iran

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## EDUCATION

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

- **Selected GPA** : **3.92/4**
- Last **3** Semesters: **17/20** ($\approx$ **3.71/4**)
- 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
- Cloud Computing
- Wireless Networks
- 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.

**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**, Tehran, Iran
*Web Developer* **Feb. 2019 – May. 2019**

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

**Samsung AUT Tech.,** Tehran, Iran
*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*)**, Tehran, Iran
*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 | **Embdded & 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