

Mohammadreza Mousaei

RESEARCH ENGINEER · FIELD ROBOTICS CENTER, CARNEGIE MELLON UNIVERSITY

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Research Experience

Carnegie Mellon University

RESEARCH ENGINEER AT FIELD ROBOTICS CENTER, ADVISOR: PROF. RED WHITTAKER.

Pittsburgh, PA

Dec. 2017 - present

- Developing 3D Perception software for pipe crawler robot using ToF Lidar
- Developing robot localization software using EKF
- Constructing 3D map of the environment using ICP
- Developing robot simulation environment using Gazebo
- Developing steering software using PID controller

University of Illinois at Chicago

RESEARCH ASSISTANT AT WIRELESS LAB, ADVISOR: DR. SMIDA.

Chicago, IL

Aug. 2015 - Nov. 2017

- Designing a fully integrated radar and communication system – named ComSens
- This work is published at IEEE Military Communications Conference 2017 (IEEE Milcom 2017)
- Optimizing Pilot Overhead for Ultra-Reliable Short-Packet Transmission
- This work is published at International Conference on Communication (IEEE ICC 2017)

Sharif University Of Technology

RESEARCH ASSISTANT AT COMPUTER VISION LAB, ADVISOR: DR. JAMZAD.

Tehran, Iran

Nov. 2014 - Feb. 2015

- Hardware development of an @Home robot for participating in AUT-CUP competitions

Tehran Polytechnic University

RESEARCH ASSISTANT AT COMPUTER VISION LAB, ADVISOR: DR. SHIRI.

Tehran, Iran

Jan. 2015 - Jul. 2015

- Hardware development of an @Home Robot for ROBOCUP15

Shahid Beheshti University

RESEARCH ASSISTANT AT TELECOMMUNICATIONS LAB, ADVISOR: PROF. AFJEI.

Tehran, Iran

Sep. 2013 - Dec. 2013

- Research on optimizing Power Line Communication Systems with OFDM Modulation

Research Interest

- Robot 3D Perception • SLAM • Computer Vision

Education

University of Illinois at Chicago

M.Sc. IN ELECTRICAL ENGINEERING

Chicago, IL

Aug. 2015 - PRESENT

- GPA: 3.58/4

Shahid Beheshti University (former National University of Iran)

B.S. IN ELECTRICAL ENGINEERING

Tehran, Iran

Sep. 2010 - Jan 2015

- GPA: 17.09/20 (3.72/4)

Honors & Awards

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| 2014 | 2nd Place , AUT-CUP Robotic International Competition, Artificial Intelligence league | Amirkabir U. of Tech |
| 2012 | 2nd Place , ACM ICPC Qualification Programming Contest | S. Beheshti Univ. |
| 2012 | 19th Place , ACM ICPC West Asia Regional Programming Contest | Sharif U. of Tech |
| 2011 | 5th Place , ACM ICPC Qualification Programming Contest | S. Beheshti Univ. |
| 2010 | Ranked Top 1% , Mathematics and Physics among more than 178,000 students in Iranian nationwide university entrance examination (Konkoor). | Tehran, Iran |
| 2008 | Accepted , Iranian National Olympiad Competition in Mathematics | Tehran, Iran |
| 2007 | Accepted , Iranian National Olympiad Competition in Computer Science | Tehran, Iran |

Skills

Programming	C/C++, ROS, C#, MATLAB, JAVA, VHDL, Verilog, LaTeX,
Smart Phone Programming	iOS (Swift), Android
Web	HTML, CSS, JS, php
Controllers	AVR, ARM, FPGA, PLC
PCB Layout	Altium Designer
Languages	Persian (native), English (fluent), Arabic(Intermediate)

Teaching Experience

2017	Wireless Communications , Teaching Assistant	UIC
2016	Digital Communications , Teaching Assistant	UIC
2016	Solid State Device Theory , Teaching Assistant	UIC
2016	Logic Design , Teaching Assistant	UIC
2015	Computer Communication Networks I , Teaching Assistant	UIC
2015	Probability and Random Processes , Teaching Assistant	UIC
2012-13	Digital Logic Design , Teaching Assistant	S. Beheshti Univ.
2012-13	Robotics Workshop , Instructor	Mofid I Highschool
2012-13	Robotics Workshop , Instructor	Mofid III Highschool
2012-13	Robotics Workshop , Instructor	Danesh Highschool
2012	Mathematics and Physics , Instructor	Allame Highschool
2012	Mathematics and Physics , Instructor	Salam Highschool
2012	Mathematics and Physics , Instructor	Talash Highschool

Work Experience

PLTW Illinois	Chicago, IL
IT EXPERT	Jun. 2016 - Sep. 2016
• Tech support and IT Technician	
Hooshmand Afzar CO (Pish Robot)	Tehran, Iran
DIGITAL DESIGNER	Jan. 2012 - Jun. 2012
• Designing and Implementing robot control circuits	
Rahjuyan Sanat Taban CO (RST)	Tehran, Iran
DIGITAL DESIGNER	Jun. 2012 - Dec. 2012
• Digital & Analogue Circuits Designing and Implementing	

Projects

2017	Computer Vision , Implementing different CV algorithms on OpenCV	Udacity
2017	Machine Learning , Implementing different ML algorithms on MATLAB	Coursera
2017	Image and Video Processing , Implementing Image and Video processing methods on OpenCV	Coursera
2016	Wireless Communication , Simulating LTE system on MATLAB	UIC
2016	Information Theory , Survey paper on Rate in Finite Blocklength	UIC
2015	Digital Control , Implementing a current source controlling with PID using ARM	S. Beheshti Univ.
2015	Image Processing , Implementing Different kinds of Visual Cryptography using both MATLAB and C#	S. Beheshti Univ.
2014	Communication Circuits , Simulating a Low Noise Amplifier (LNA) with ADS	S. Beheshti Univ.
2014	Digital Signal Processing(DSP) , Simulating Different kinds of filters (butterworth, chebishev etc) with MATLAB	S. Beheshti Univ.
2013	Industrial Electronics , Simulating different kinds of convertes(buck, boost, buck- boost) with MATLAB	S. Beheshti Univ.
2012	Electronics II , Designing, Simulating and Implementing a High gain Amplifier with low noise	S. Beheshti Univ.

Publications

Robotics and Computer Vision:

- A. Sheikhhajari, S. Gharghabi, K. Sartipi, **M. Mousaei**, A. Sheikhhajari, E. Babaians and S. Shiry Ghidary, "Amirkabir University of Technology (AUT) @Home 2014 Team Description Paper", **Robocup 2014, Joao Pessoa, Brazil**, Jul. 2014.
- A. Keipour, K. Sartipi, **M. Mousaei**, S. Mohammadzadeh, M. Jamzad, "Team Description Paper for Sharif University of Technology (SUT) Team", **AUTCUP Robotics competitions**, Oct. 2013.
- **M. Mousaei**, A. Keipour, E. Babaians, "Automated High-Speed Traffic Monitoring and Violation Detection Using RFID Technology", **IEEE Iranian Conference on Electrical Engineerin**, May 2014.

Wireless Communication and Information Theory:

- **M. Mousaei**, S. Vahidian, B. Smida, "Training Signal Optimization for Communication in Finite-Blocklength: An Analytical Approach", **IEEE Communications Letters**, *Under Preparation*.
- **M. Mousaei**, M. Soltanalian, B. Smida, "ComSens: Exploiting Pilot Diversity for Pervasive Integration of Communication and Sensing", **IEEE International Conference on Communication**, May 2017, *Submitted*.
- **M. Mousaei**, B. Smida, "Optimizing Pilot Overhead for Ultra-Reliable Short-Packet Transmission", *IEEE International Confesrence on Communication*, May 2017.

Test Scores

TOEFL

SCORE: 105

- Reading (29/30), Listening (29/30), Speaking (22/30), Writing (25/30)

ETS

Dec. 2014

GRE

SCORE: 313

- Analytical (3.5/6.0), Quantitative (167/170), Verbal (146/170)

ETS

Nov. 2014

Hobbies

- Professional Swimming • Mountain climbing • Biking

References

References available upon request