Advance Robotics and Artifitial Intelligence Labrotory
ECE Department, Engineering Faculty
University of Tehran, Tehran, Iran
+98 (935) 2489973
+98 (21) 44136621
valipour.sepehr@gmail.com
www.sepehrvalipour.com

Sepehr Valipour

Curriculum Vitae

Fields of Interest

- Visual Servoing and Mobile Manipulator
- Visual Navigation
- Computer Vision and Its Applications
- Machine Vision
- Mobile Robots and Telerobotics

Education

2008 - 2015 **B.Sc. in Electrical Engineering**, *School of Electrical and Computer Engineering*, University of Tehran, Tehran, Iran.
GPA 16.68/20
Thesis "A Vision Based Automatic Hotline Tracking Using Flying Robots"
Adviser Dr. Hadi Moradi

2006 - 2010 **High school Diploma in Mathematics and Physics**, *National Organization for Development of Exceptional Talents*, Allame Helli High School Tehran, Iran.

Research Experience

2013-Present **Research Assistant at Advance Robotics and Artifitial Intelligence Labrotory**, *University of Tehran*, Tehran, Iran, Under Supervision of Dr. Hadi Moradi.

Summer 2014 **Research Assistant at Mechatronics Laboratory**, *University of Paderborn*, Paderborn, Germany, Under Supervision of Prof. Dr.-Eng. habil. Walter Sextro.

Publications

October 2014 **Valipour, S.**, Moradi, H., "A Vision-based Automatic Hotline Tracking Approach Using Unscented Kalman Filter". The 2nd RSI International Conference on Robotics and Mechatronics, Tehran, Iran. (under print)

Honors and Awards

2014 Ranked 4th in the Control Eng. at University of Tehran

2010 Ranked 130th among almost 87,000 participants in the National University Board exam in the field of Mathematics and Physics for BS degree. Tehran, Iran

2010 Received the title of Exceptional Talented Student in University of Tehran, Tehran, Iran

2006 Admitted to Allame Helli high school, National Organization for Development of Exceptional Talents, Tehran, Iran

Relevant Courses

- Advanced Robotics(grad): **19/20**(Ranked 2nd)
- Mechatronics: **18/20**(Ranked 2nd)
- Industrial Control: **17.9/20**(Ranked 3rd)
- Linear Control: **17.7/20**(Ranked 4th)
- Intelligent Systems(grad): **18.5/20**(Ranked 1st)
- Operation Research: **19.5/20**(Ranked 1st)
- Probability and Statistic: **19.8/20**(Ranked 1st)
- Advance Programming: **18.16/20**(Rnaked 4th)
- Numerical Computation: **19.8/20**(Ranked 2nd)
- Machine Learning(University of Stanford On-line Course): **100/100**
- Autonomous Navigation for Flying Robots(Technical University of Munich On-line Course): **98/100**

Notable Projects

2013-Present **Advance Robotics and Artifitial Intelligence Labrotory, University of Tehran**, Adviser: Dr. Hadi Moradi.

Title A Vision Based Automatic Hotline Tracking Using Flying Robots

On-line power line detection in video stream using OpenCV library. Implementing a tracker using unscented Kalman filter. Simulation in V-REP environment. Controlling a quad-rotor using Robotic Operation System (ROS). Real-life testing.

Summer 2014 **Mechatronics Laboratory, University of Paderborn, Paderborn, Germany**.
Adviser: Prof. Dr.-Eng. habil. Walter Sextro

Title State Estimation and Fault Detection in Piezoelectric Actuators

Developing a data acquisition software with C++. Implementing self-sensing mechanism for piezoelectric actuators. Fault diagnosis and prognosis in piezoelectric actuators using machine learning methods. On-line State estimation in piezoelectric actuators using particle filter

Spring 2014 **Advanced Robotics Course, University of Tehran** .
Adviser: Dr. Hadi Moradi

Title Particle filter based localization algorithms for e-puck robots

Obtaining sensor model and motion model of the robot. Behaviour based path-planning. Implementing localization algorithm. Test on the Webot simulation environment. real-life testing

Spring 2013 **Intelligent Systems Course, University of Tehran**.
Adviser: Dr. Maryam Mirian

Title Simple Mapping Using Stereo Camera and Object Recognition Using Kinekt and Berkeley 3-D Object Dataset

Calibrating two cameras and extracting depth image using stereo vision with OpenCV. Basic mapping using multiple images taken in different angles. Pre-processing on dataset and training a neural network based on it

Summer 2013 **Qeshm Voltage Company, Tehran, Iran**

Title Vision Based Object Follower Robot

Building an object follower robot (using computer vision). Including designing the robot's PCB, programming its embedded system, coding MATLAB image processing and user interface

Spring 2014 **Advanced Robotics Course, University of Tehran** .
Adviser: Dr. Hadi Moradi

Title Path Planning for Finger Wheeled Arm Robot for Object Manipulation

Implementing the robot's structure in simulation enviroment. PRM and RRT path planning for object manipulation using OMPL library. Test on simulation enviroment

Fall 2013 **Industrial Control Course, University of Tehran**.
Adviser: Dr. Moosa Ayati

Title Controlling a quad-rotor in V-REP simulation environment with a PID controller in LAbView.

Teaching Assistant-ship

Fall 2013 & Fall 2014	**Linear Control**	*Instructed by Dr. Fariba Bahrami*
Fall 2014	**Industrial Control**	*Instructed by Dr. Moosa Ayati*
Fall 2014	**Linear Control**	*Instructed by Mr. Hosein Shafiei*
Fall 2013	**Introduction to Computer System and Programming**	*Instructed by Dr. Hadi Moradi*
Spring 2013 & Fall 2013	**Microprocessorr**	*Instructed by Dr. Omid Fatemi*
Spring 2013	**Circuit and Measurement Laboratory**	*Instructed by Dr. Hossein Imaneini*

Work Experience

2014 - Present **Robotics Researcher and Developer at Qeshm Voltage Co.**, Designing and implementing a multi-purpose and remote controllable electronic board for educational arm robots.

Summer 2013 **Internship at Qeshm Voltage Co.**

- Working with Simense PLCs (Scv300 and S400) HMIs and instruments to setup educational purposed mechatronics sets
- Maintenance and repairing of company's existing arm robots

Languages

Persian **Native**

English **Expert**

- **GRE**: Verbal Reasoning: **159/170**, Quantitative Reasoning: **170/170**, Analytical Writing: **3.5**
- **TOEFL**: **106/120** (Reading:29/30, Listening:30/30, Speaking:23/30, Writing:24/30)

Arabic **Familiar**

Computer and Technical Skills

Programming: Proficient with C, C++ and Python

Softwares & Libraries: MATLAB, Altium Designer, LabView, ROS, OPENCV, OMPL, V-REP, Proteus, QUARTUS, ModelSim, NI Multisim, Visual Studio, CodeVisionAVR, Orcad, Autocad, Latex, MS Office

Operation System: Linux, Windows

Interests and Other Activities

Sport: Swimming, Football, Tennis

Music: Listen to Alternative Rock, Play Tonbak

References

Dr. Hadi Moradi, *Assistant Professor*, School of Electrical and Computer Engineering, University of Tehran, Iran.

Dr. Maryam Mirian, *Assistant Professor*, School of Electrical and Computer Engineering, University of Tehran, Iran.

Dr. Fariba Bahrami, *Associate Professor*, School of Electrical and Computer Engineering, University of Tehran, Iran.

Dr. Moosa Ayati, *Assistant Professor*, School of Electrical and Computer Engineering, University of Tehran, Iran.

Dr. Omid Fatemi, *Assistant Professor*, School of Electrical and Computer Engineering, University of Tehran, Iran.