

# Faezeh RAHBAR

**Address :** Avenue du 14 Avril, 7  
1020, Renens, Switzerland

**Phone :** +41 77 483 90 11  
**E-mail :** [faezeh.rahbar@epfl.ch](mailto:faezeh.rahbar@epfl.ch)

## RESEARCH INTERESTS

**Major Fields:** **Intelligent Systems, Robotics, Artificial Intelligence**

**Minor Fields:** Olfactory Robotics, Swarm Intelligence, Machine Learning, Neural Network, Deep Learning

## EDUCATION

**2015 - Present** **Ph.D. Robotics, Control and Intelligent System,**  
École Polytechnique Fédérale de Lausanne (EPFL), Switzerland.

**2013 - 2015** **M.S. Intelligent Systems Engineering,** Honors,  
Pierre & Marie Curie University, Paris, France.

**2010 - 2013** **B.S. Electronic Engineering,** Honors, **1<sup>st</sup> rank,**  
Pierre & Marie Curie University, Paris, France.

## HONORS AND AWARDS

- **Ranked 1<sup>st</sup> in Bachelor's degree** among 88 students  
Pierre & Marie Curie University
- **Best Master project**

## RESEARCH EXPERIENCE

**10 2015 - Present** **Ph.D., Distributed Intelligent Systems and Algorithms Laboratory**  
(DISAL), École Polytechnique Fédérale de Lausanne (EPFL), Switzerland.  
*"3D Odor Source Localization Using a Heterogeneous Mobile Sensor Network"*

My current project is focused on pushing the boundaries of olfactory robotics towards achievement of real world applications in complex situations. Designing new algorithms, using Machine Learning, is a priority.

**02-08 2015** **Internship, Institute for Intelligent Systems and Robotics (ISIR),**  
Pierre and Marie Curie University, Paris, France  
*"Dynamics Analysis of Human-Machine Interaction for Engagement Detection and Recognition of Personality"*

The goal of this research project is to recognize some personality traits of an individual by means of processing his interaction with the iCub robot.

**05-08 2014** **Internship, Superconductor Electronics Research Laboratory (SERL),**  
Sharif University of Technology, Tehran, Iran

*"SQUID Based Robotic System for Non-Destructive Evaluation Applications"*

My research was aimed to detect any crack or defect on metallic samples through processing of the RF SQUID output signal. It was an enriching project in analog electronics, magnetism, and programming in MATLAB.

**06-08 2013**     **Internship, Institute for Intelligent Systems and Robotics (ISIR),**  
Pierre and Marie Curie University, Paris, France

*"Analysis of Eyes Movements During Interactive Tasks"*

I did an interdisciplinary research focusing on multimodal emotional processing aimed to develop tools to allow psychologists to analyze emotions during evaluation tests on eye tracker systems.

## OTHER PROJECTS

- **Brain-controlled Avatar**  
Brain signals measured by an electroencephalography (EEG) device are used to control the movements of a NAO robot which sees (via video transmission), hears, and speaks (via voice transmission) for the person using EEG device.
- **Participation in a drone workshop "Game of Drones"**  
Designing a radio controlled tricopter drone equipped with an Arduino microcontroller and brushless motors
- **Gesture Recognition**  
Using the Hidden Markov Model (HMM) algorithm in order to recognize computer mouse motion defined previously
- **Object Tracking**  
Select an object in a video in order to track it using Particle Filtering algorithm
- **Face Recognition**  
Implement the Local Gabor Binary Pattern Histogram Sequence (LGBPHS) algorithm for face recognition.
- **Augmented reality**  
Camera calibration with a test pattern and adding 3D virtual objects into a real scene photographed or filmed
- **Designing a Smart Cane for Blind People**  
Designing electronic circuits and programming an ARM7 microcontroller for a cane which avoids obstacles via a telemeter and guides the blind person to his goal using the maps saved in its memory
- **Video Game Development**  
Development of a video game in C language using an already defined graphics library under Linux operation system
- **License Plate Recognition**  
Recognition of license plate numbers using the KNN algorithm

## SKILLS

### **Programming language:**

C, C++, MATLAB/Octave, Java, VHDL.

### **Software:**

Microsoft Office, MATLAB/Simulink, Webots, OpenFoam, ModelSim, Xilinx, PSpice, KeilµVision, COMSOL Multiphysics, Dev-C++.

### **Microcontroller:**

ARM7, Arduino, FPGA, NIOS II.

### **Language:**

Persian: Native

French: Bilingual

English: Fluent