# Reza Rostam

Embedded software engineer, machine learning researcher, control systems engineer

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mrrostam.github.io

# SUMMARY OF QUALIFICATIONS

- Strong programming skills with several languages (C/C++, Python, MATLAB, Assembly)
- Highly skilled machine learning scientist with over 4 years of experience in academic and industry settings
- Deep knowledge of embedded systems and real-time OSs
- Strong knowledge of sensors, actuators, and instrumentation
- Expert in designing and implementing various controllers (adaptive, robust, nonlinear, optimal)
- More than 10 years of research experience internationally

# EXPERIENCES

#### **Embedded Software Engineer**

Picovoice Inc.

Oct 2020 - Ongoing

**♥** Vancouver

- Developing platforms for an advanced NLP algorithm
- Optimizing the NLP engine code to increase its speed

#### Graduate Research Assistant

**Control Engineering Laboratory** 

Sep 2016 - Ongoing

**♥** Vancouver

- Managing research partnership with the industrial partner
- Mentoring four undergraduate and two Master of Science students on various research projects
- Conducting journal reviews for three scientific journals
- Engaging students in extracurricular academic activities while being the VP Finance of the Mechanical Engineering Graduate Association

#### Research And Development Engineer

FanKavan Ara

**♀** Tehran

- Supervised two engineers as the head of the mechatronic division
- Developed PCBs as well as software interfaces for data-loggers

#### Research And Development Engineer

Aral research Co.

m Apr 2014 - Sep 2014

**♀** Tehran

#### **Project Leader**

**UBC Centre for Community Engaged Learning** 

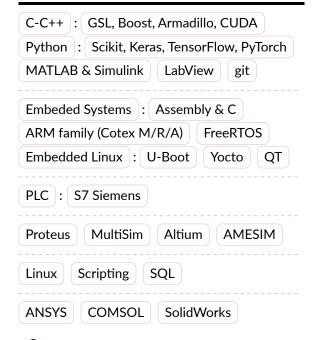
₩ Oct 2019 - Mar 2020

**♥** Vancouver

#### AREAS OF EXPERTISE

- Embedded Systems
- Mechatronic/Control Systems
- Machine Learning & Time Series Analysis
- Intelligent Signal Processing
- Optimization & Applied Mathematics
- Mechanical Vibrations (Nonlinear & Continuous)

# COMPUTER SKILLS



#### EDUCATION

### Ph.D. in Control Systems

The University of British Columbia

Sept 2016 - Present

Thesis: A Hybrid Gaussian Process Approach to Robust Economic Model Predictive Control

#### M.Sc. in Mechanical Engineering **Sharif University of Technology**

₩ Sept 2013 - Feb 2016

Thesis: Control of Adaptive Optics Systems Using Transverse Actuators

#### B.Sc. in Mechanical Engineering Iran University of Science and Technology

• Led a group of 20 students, after taking a series of workshops, to enhance the quality of education for kids in BC

### PROJECTS

# Robust Economic Model Predictive Control with Application to Solar Thermal Systems

**Natural Sciences and Engineering Research Council** 

**2020** 

**◊** Vancouver

- Developing a new control system combining the model predictive control scheme with a machine learning technique called Gaussian process
- The proposed system is able to deal with quasi-periodic unknown disturbances such as energy demand in renewable energy systems

#### **Train Monitoring System**

FanKavan Ara

**#** 2016

**♀** Iran

• Designed a portable data-logger for monitoring the ride comfort as well as the wheelset's temperature

# GM Locomotive's DC Traction Motor Condition Monitoring and Fault Diagnostics using Artificial Neural Network Iran Railways

**2015** 

**♀** Tehran

 Developed an intelligent monitoring system using vibration analysis based on the discrete wavelet transform and Learning Vector Quantization artificial neural network

# Design and Fabrication of the Magnetic Electron Lens for a Transmission Electron Microscopy

Ara research

**2014** 

**♀** Tehran

• Built a magnetic electron lens, during a 3-month project, to be implemented inside a Transmission Electron Microscopy

# Active Noise Control in Pardis Coach using Different Fuzzy Controllers

Iran University of Science and Technology

**2012** 

**♀** Tehran

• Designed a fuzzy controller to suppress the noise inside the coach

# Dynamic Analysis of MD523 Bogie with ADAMS/Rail Iran University of Science and Technology

**## 2012** 

**♀** Tehran

 Modeled and simulated an MD523 bogie in Adams/rails based on manufacturing documents

### CERTIFICATIONS

- Essentials of Productive Teams (Mitacs)
- Foundations of Project Management (Mitacs)
- Design and Implementation of Smart Automation Systems (Shrif University)

# **COURSES TAUGHT**

- Modeling of Mechatronic Systems
- Mechatronics System Instrumentation
- Automatic Control
- Modelling of Dynamic Systems
- Modern Control Engineering
- Mechanical Vibration
- MATLAB & Simulink for Engineers

### **SELECTED COURSES**

- Advanced Machine Learning
- Machine Learning and Data Mining
- Introduction to Artificial Intelligence
- Control Sensors and Actuators
- Modelling of Dynamic Systems
- Foundations in Control Engineering
- Multi-variable Feedback and Robust Control
- Self-Tuning and Adaptive Control
- Optimal Control

### **Q** HONORS & AWARDS



**Linux Foundation Training Scholarship** to become Certified System Administrator



Mitacs Research Training Award Proposal in recognition of the research achievement



Faculty of Applied Science Award in recognition of the research achievement



Best Presentation Award

BC universities "Systems&Control" meeting



Four Year Fellowships (FYF)

in recognition of the academic achievement



Ranked 1st

amongst the B.Sc. alumni



#### Prof. Ryozo Nagamune

m University of British Columbia

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