Hamid Osooli

CURRICULUM VITAE

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Education

2021–2026 **Ph. D**, *Computer Science*, Robotics, Reinforcement Learning, University of Massachusetts Lowell.
Advisor: Dr. R. Ahmadzadeh
Courses: **Introduction to Algorithms, Reinforcement Learning**

2017–2019 **M. Sc.**, *Aerospace Engineering*, Flight Dynamics and Control, K. N. Toosi University of Technology.
Thesis: **An integrated control algorithm for camera and flying object movement on the basis of Game Theory**, Advisor: Prof. J. Roshanian
Courses: **Advanced Control, Optimal Control, Nonlinear Control, Game theory, Dynamic systems modeling**

2013–2016 **B. Sc.**, *Mechanical Engineering*, Solid Mechanics, University of Kashan.
Thesis: **Making a Robot Inspired by the Human Eye**, Advisor: Dr. M. Irani rahaghi
Courses: **Automatic Control and lab, Robotics and lab, Dynamic systems simulation and control**

2011–2013 **B. Sc.**, *Information Technology Engineering*, Isfahan University of Technology.
After four semesters I changed my major and university (no degrees earned)
Courses: **Computer programming and lab, Advanced programming and lab, Digital design and lab**

Experience

Research

Aug 2021 – Present **Graduate Research Assistant**, *Dr. R. Ahmadzadeh*, Computer Science Department, University of Massachusetts Lowell, Lowell, MA, United States.
DEVCOM Army Research Lab: Strengthening Teamwork for Robust Operations in Novel Groups (STRONG)
Tasks: *Work in the "Trust-NEARCHAT: Trust Network Emergence Amongst Resource-Constrained Human-Agent Teams*

- *Conducting research related to the main subject of the project*
- *Collaborating with other groups of students and faculty in the project*
- *Performing experiments, analyzing data, and reporting results*
- *Preparing weekly progress report*
- *Reading and writing papers*
- *Assisting with other lab tasks as needed*

Dec 2019 – Mar 2020 **Senior Research Fellow**, *Dr. M. Ravandi*, Mechanical Engineering Department, K. N. Toosi University of Technology, Tehran, Iran.

A feasibility study on methods regarding inspection of subsea assets, in order to make a Remotely Operated Vehicle (ROV) similar to Halfwave ARTEMIS

Tasks: *Doing research on relevant methods, Writing technical reports, Designing a CAD model for concrete coated pipes, Making a test specimen of the pipes*

Nov 2018 – Dec 2019 **Researcher**, *Dr. A. H. Nikoofard*, Electrical Engineering Department, K. N. Toosi University of Technology, Tehran, Iran.

Hardware implementation of Game theory on Eye Robot movements

Tasks: *Devising Game theoretical control algorithms for Eye Robot, Coding the methods in MATLAB, Implementation of algorithms on Eye Robot, Presentation of the work in scientific papers*

Sep 2018 – Jul 2019 **M. Sc. Thesis**, *Prof. J. Roshanian*, Aerospace Engineering Department, K. N. Toosi University of Technology, Tehran, Iran.

An integrated control algorithm for camera and flying object movement on the basis of Game theory

Tasks: *Devising Game theoretical control algorithms to control flying object and the mounted camera simultaneously, Simulating the methods in MATLAB, Presentation of the work in scientific papers, Providing a defence presentation*

Jan 2018 – Jul 2018 **M. Sc. Seminar**, *Prof. J. Roshanian*, Aerospace Engineering Department, K. N. Toosi University of Technology, Tehran, Iran.

Applications of Game theory in Aerospace Problems

Tasks: *Doing research on relevant methods, Writing a report, Providing a defence presentation*

Jun 2016 – Sep 2017 **Researcher**, *Dr. M. Irani rahaghi*, Robotics Laboratory, Mechanical Engineering Department, University of Kashan, Kashan, Isfahan, Iran.

Programming and control of Eye Robot

Tasks: *Coding the control methods in MATLAB, Presentation of the work in scientific papers*

Sep 2015 – Jun 2016 **B.Sc. Final Project**, *Dr. M. Irani rahaghi*, Mechanical Engineering Department, University of Kashan, Kashan, Isfahan, Iran.

Making a robot inspired by the human eye

Tasks: *Computer aided design of the robot body inspired by the human eye and extra-ocular muscles, 3D printing of the robot, Developing a MATLAB toolbox (XL_320 Toolbox) for the servomotors to communicate with the controller board via MATLAB, Writing a technical report*

Work

Jul 2020 – Aug 2021 **Data scientist**, *Dr. F. Vesali*, PANTOhealth, Berlin, Germany.

Tasks: *Accelerating simulation codes for the interaction of rail vehicle pantograph and catenary, Developing big data state-space model simulation in MATLAB, Python and C++ and speed comparison, Writing technical reports*

Mar 2020 – Jul 2020 & Feb 2021 – Jul 2021 **Teaching Assistant (TA)**, *Dr. M. Farrokh*, Aerospace Engineering Department, K. N. Toosi University of Technology, Tehran, Iran.

Algorithms and Computer Programming in Python

Tasks: *Solving class assignment problems for students, Proof reading the students assignment codes and papers*

Jul 2017 – Sep 2017 **English Language Teacher**, BSCL, Beinolmelal Specialized Centre of Language, Kashan, Isfahan, Iran.
Tasks: *Teaching English language to pre-intermediate and intermediate level students*

Jul 2016 – Aug 2016 **Mechanical Engineering Intern**, *Prof. A. Ghorbanpour Arani*, Copper World Company, Kashan, Isfahan, Iran.
Tasks: *Collaboration with staff, Computer aided design of the broken parts, Writing technical reports*

Jan 2014 – Jan 2016 **Website Administrator**, Parsa Language School, Kashan,Isfahan, Iran.
Tasks: *Design of website by Drupal and students information system by PHP, Customizing the website for the school, Management of the students database*

Publications

Journal Articles

- Osooli, H., Nikoofard, A. H., Shirmohammadi, Z., **Releaf: Design and implementation of a humanoid occlusion handling method for Eye robot**, Journal of Ambient Intelligence and Humanized Computing (JAIHC) (Under review)
- Osooli, H., Roshanian, J., Nikoofard, A. H., **Autonomous UAV cinematography by Game theory**, Autonomous Robots (AURO) (Under review)
- Osooli, H., Irani rahaghi, M., **A Tendon Driven 3D Printed Eye Robot as an Active Vision System: Design and Simulation of Eye Movements**, (Under revision)

Conference Proceedings

- Osooli, H., Nikoofard, A. H., Shirmohammadi, Z., (2019) **Game Theory for Eye Robot Movement: Approach and Hardware Implementation.** In 2019 27th Iranian Conference on Electrical Engineering (ICEE). Yazd: IEEE. https://doi.org/10.1109/IranianCEE.2019.8786637
- Osooli, H., Irani rahaghi, M., (2017) **Making a Robot Inspired by the Human Eye (in Persian)** In 2017 25th Annual International Conference on Mechanical Engineering (ISME). Tehran. https://en.civilica.com/doc/634843/

Service

Peer Review

- **The Journal of Supercomputing**, Springer

Awards, Honors

- **Robotic Ophtalmotrope (Eye Robot)** was considered as a *Praiseworthy Initiative* in Khayyam International Invention and Innovation Festival, Jun, 2021
- **Ranked 4'th in M.Sc. studies**, 2020
- **XL_320 Toolbox** earned the Personal Best Downloads Level 1 badge in MATLAB File Exchange, Nov 1, 2019
- **On-time MSc Thesis Defence and Graduation** The first and only defence after 4 semesters, among all 50 Aerospace Engineering students who were admitted in Fall 2017, Aug 1, 2019

- **Graduate Scholarship** Ministry of Science, Research and Technology, Iran, 2017-2019
- **Undergraduate Scholarship** Ministry of Science, Research and Technology, Iran, 2011-2016
- **Khwarizmi award** in the local section, 2008, for the Magnetic Bicycle Idea
- **Ranked 2'nd in the city**, 2006, in Computer Olympia
- **14 medallions** in Taekwondo Kiu-rogi
- **2 medallions** in Taekwondo Poomsae
- **Membership** in Kashan selected Taekwondo players team, 2005-2010

Certifications

- **Computer Vision Basics**, Coursera, taught by Dr. Junsong Yuan, Radhakrishna Dasari, University at Buffalo & The State University of New York, Dec 2020
- **"The Complete Python 3 Course: Beginner to Advanced"**, Udemy, taught by Joseph Delgadillo, Nick Germaine, May 2020
- **"27'th Iranian Conference on Electrical Engineering"**, (ICEE 2019), Yazd University, Paper Presentation
- **25'th Annual International Conference on Mechanical Engineering**, (ISME 2017), Iranian Society of Mechanical Engineers, Paper Presentation
- **Taekwondo Kiu-rogi Referee**, 2014
- **Taekwondo 3'rd Dan Black Belt**, 2011, Iran Taekwondo Federation

Online Courses

- **Machine Learning**, By Dr. Andrew Ng, Stanford University, coursera.org (in progress)
- **Hello (Real) World with ROS – Robot Operating System**, By Dr. Mukunda Bharatheesha, Gijs van der Hoorn, Dr. Carlos Hernandez Corbato, Prof. Martijn Wisse, Mohamed Baioumy, Delft University of Technology, edx.org
- **Writing in the Sciences**, By Dr. Kristin Sainani, Stanford University, coursera.org (100 / 100)
- **Game Theory**, By Prof. Matthew O. Jackson, Prof. Kevin Leyton-Brown, Prof. Yoav Shoham, Stanford University, The University of British Columbia, coursera.org (100 / 100)
- **Control of Mobile Robots**, By Prof. Magnus Egerstedt, Georgia Institute of Technology, coursera.org (100 / 100)

Skills

- **Mechanical Design:** Autodesk Inventor, CATIA
- **Programming:** MATLAB, C, C++, Python, JAVA, LaTeX
- **Simulation:** Simulink, 20-sim, Adams, Ansys Gambit & Fluent
- **Web developing:** HTML, PHP, Drupal CMS, Joomla CMS
- **Image/Video Editing:** Adobe Photoshop, Adobe Premiere

- **Others:** Linux (Ubuntu), Git, Robot Operating System (ROS)

Languages

- **English:** Highly Proficient
- **Persian:** Highly Proficient (Native)
- **Arabic:** Intermediate

Workshops

- **Toward Intelligent Remotely Assisted Manipulation Tasks**, Dr. Long Wang, Stevens Institute of Technology, Aug 13, 2020
- **Robot-Clinician Collaboration for Semi-Autonomous Computer-Integrated Medicine**, Prof. M. Tavakoli, ICEE 2020, Aug 4, 2020
- **Brain Computer Interface: The Future of Human Machine Interaction**, Dr. F. Goodarzy, K. N. Toosi University of Technology, September 30, 2019
- **Movement Planning and Control for Advanced Robotic Systems**, Dr. M. Biglarbegian, K. N. Toosi University of Technology, April 21, 2018
- **Passivity-based Control of Robotic Systems**, Prof. Romeo Ortega, Sharif University of Technology, April 15 and 16, 2018

Teaching Experience

- **Algorithms and Computer Programming in Python**, Teaching Assistance (TA), Spring 2020 and 2021
- **English Language**, Language school teacher, Private lecturing, 2017-2018
- **Computational Fluid Dynamics (CFD)**, Private lecturing, 2015
- **Automatic Control**, Private lecturing, 2015
- **Mechanical Vibrations**, Private lecturing, 2014
- **Computer Programming in C**, Private lecturing, 2013
- **Taekwondo**, Senior instructor, 2008-2009 and 2014

Standardized Tests

TOEFL Jan 5, 2019

Reading	24
Listening	22
Speaking	23
Writing	25
Overall	94

GRE Jun 26, 2020

Verbal Reasoning	152
Quantitative Reasoning	158
Analytical Writing	3.5

Research Interests

Robotics, Reinforcement learning, Game theory, Control theory