Pooya **Abolghasemi**

Deep Learning · Robotics · Software Engineer

Orlando, Florida

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"Be on Time."

Education

University of Central Florida — *Orlando, USA*

PhD in Computer Science — *Fall. 2014 - Present*

- Overall GPA: 3.83/4

University of Tehran — *Tehran, Iran*

B.S. in Computer Engineering — *Fall. 2009 - 2014*

- Overall GPA: 3.5/4 (16.35/20)

Experience

University of Central Florida — *Orlando, FL*

PhD Student - machine learning and robotics — *Fall 2014 - Present*

- Published the state of the art papers in Robotics, Machine Learning, Computer Vision conferences.
- Our papers are included as reading material in courses presented at well known universities such as UC Berkeley, CMU
- Thesis title: Task Focused Imitation Learning
- Technologies: Python, Tensorflow, ROS, Chainer

Mosaixsoft Inc. — *Los Altos, CA*

Full Stack Developer - Intern — *May 2015 - Sep 2016*

- Implemented a graph visualizer to visuallize various cloud components and various other web components
- Technologies: Java, HTML, CSS, Shell Scripts, Docker

University of Tehran Artificial Intelligence and Advanced Robotics laboratory — *Tehran, Iran*

Bachelor Student — *2012 - 2014*

- Implementation of an Expert System to Detect Autistic Children (Bachelor Thesis) Under supervision of Prof. Moradi
- Technologies: MATLAB, PHP, HTML, CSS, C++

Iran Computer and Video Games Foundation — *Tehran, Iran*

Game Developer — *2013 - 2014*

- Developed a 2D-game with Game Maker Engine
- Technologies: Game Maker

Teaching Assistant — *Tehran, Iran*

Advanced Programming, Computer Graphics, Software Engineering and Introduction to Computer Systems — *2010 - 2013*

- Teaching assistant for various courses
- Technologies: C/C++, OpenGL, Java

Extracurricular Activity

Game Team of University of Tehran (GTUT) — *Tehran, Iran*

Core Member & Founder — *2012 - 2014*

- A self-organized group formed to learn more about Computer Graphics and specifically OpenGL
- We participated in several game development national competitions
- Today it evolved to a bigger group with classes and instructors and several teams consist of Artists and programmers, designing and building games, Technologies: OpenGL, Game Maker, Unity, C#

Honors & Awards

2013 **Best Student Game**, 3rd Iran Game Festival *Tehran, Iran*
2013 **2nd place**, Iran Game Developers Cup *Kashan, Iran*
2012 **3rd place**, Iran Game Developers Cup *Kashan, Iran*

Publications

Pay attention!-Robustifying a Deep Visuomotor Policy through Task-Focused Attention

CVPR - Long Beach, USA

P Abolghasemi, A Mazaheri, M Shah, L Bölöni *June 2019*

- We proposed a technique for augmenting a deep visuomotor policy learned from demonstration with a task focused attention model. The attention is guided by a natural language description of the task – it effectively tells the policy to "Pay Attention!" to the task and object at hand. we show that the proposed policy performs correctly in the presence of a wide class of visual disturbances, exhibiting a behavior reminiscent of human selective attention experiments.
- Checkout our YouTube Video: `https://youtu.be/armz9CfjYRg`

Vision-Based Multi-Task Manipulation for Inexpensive Robots Using End-To-End Learning from Demonstration

ICRA - Brisbane, Australia

R Rahmatizadeh, P Abolghasemi, L Bölöni, S Levine *May 2018*

- We propose a technique for multi-task learning from demonstration that trains the controller of a low-cost robotic arm to accomplish several complex picking and placing tasks. The controller is a recurrent neural network using raw images as input and generating robot arm trajectories, with the parameters shared across the tasks.
- Checkout our YouTube playlist: `https://goo.gl/qkWAvs`
- Reading Material at CS294-112 Deep Reinforcement Learning course at UC Berkeley - `https://goo.gl/qz8KTt`

From virtual demonstration to real-world manipulation using LSTM and MDN

AAAI - New Orleans, USA

R Rahmatizadeh, P Abolghasemi, A Behal, L Bölöni *Feb. 2018*

- we designed an approach where the user demonstrates the task in a virtual environment. These virtual demonstrations are used to teach a deep neural network based robot controller. Then, the controller is transferred to the physical robot.
- Checkout our YouTube playlist: `https://goo.gl/xER9dx`
- Reading Material at CS294-112 Deep Reinforcement Learning course at UC Berkeley - `https://goo.gl/BvnChM`
- Reading Material at Deep Reinforcement Learning and Control course at CMU: page 52 `https://goo.gl/XgrjC3`
- Reading Material at CISC849 Robot Vision and Learning course at University of Delaware `https://goo.gl/GBXBqY`

Real-time placement of a wheelchair-mounted robotic arm

Ro-MAN - New York, USA

P Abolghasemi, R Rahmatizadeh, A Behal, L Bölöni *Aug. 2016*

- Introduced a metrics and method of how to estimate a the best position for a wheelchair mounted arm to perform a manipulation

A Real-Time Technique for Positioning a Wheelchair-Mounted Robotic Arm for Household Manipulation Tasks

AAAI - Workshops - Phoenix, USA

P Abolghasemi, R Rahmatizadeh, A Behal, L Bölöni *Feb. 2016*

- Introduced a metrics and method of how to estimate a the best position for a wheelchair mounted arm to perform a manipulation

Trajectory Adaptation of Robot Arms for Head-Pose Dependent Assistive Tasks

FLAIRS - Key Largo, FL

R Rahmatizadeh, P Abolghasemi, L Bölöni, A Jabalameli, A Behal *May. 2016*

- This is our early work for entering the learning from demonstration field. We used a simple technique to teach the robot to learn simple tasks like hold the book in front of the human or put a hat on his/her head and etc.

Computer Skills

Computer Languages

Comfortable with: Python, Java, JavaScript. **Familiar with**: C/C++, C#

Special Purpose Programs and Libraries, Protocols, APIs

Tensorflow, Chainer, ROS, Git, Unity, Docker, Jira, Jenkins, OpenGL, Matlab, GameMaker, MySQL, XML, JSON