Kasra Darvish

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Research Interests

- Artificial Intelligence, Robotics
- Computer Vision
- Natural Language Processing
- Deep Learning, Machine Learning

Education

Ph.D. in Computer Science **2018-Present**
University of Maryland, Baltimore County *Maryland, USA*
• Advisor: Professor Cynthia Matuszek • Research: Probabilistic Grounded Language Learning
• GPA: 3.83/4.0

B.Sc. in Computer Science **2013-2018**
Shahid Beheshti University *Tehran, Iran*
• GPA: 3.78/4.0 • Last 2 years GPA: 3.92/4.0

Publications

Presentation and Analysis of a Multimodal Dataset for Grounded Language Learning. Patrick Jenkins, Rishabh Sachdeva, Gaoussou Youssouf Kebe, Padraig Higgins, **Kasra Darvish**, Edward Raff, Don Engel, John Winder, Francisco Ferraro, Cynthia Matuszek. arXiv:2007.14987, 2020.

A Manifold Alignment Approach to Grounded Language Learning. Luke E Richards, Andre T Nguyen, **Kasra Darvish**, Edward Raff, Cynthia Matuszek. Submitted to The Northeast Robotics Colloquium (NERC 2019), Philadelphia, Pennsylvania, USA, October 2019.

Honors and Awards

• **Morgan Stanley scholarship recipient as a Data Science researcher** **2018-2019**
University of Maryland, Baltimore County *Maryland, USA*

• **Ranked as top 1% among computer science students** **2018**
Shahid Beheshti University *Tehran, Iran*

• **Exempted from M.Sc. university entrance exam as an exceptional-talent student** **2017**
Nationwide Universities Graduate Entrance Exam *Iran*

• **Ranked as top 1% among more than 250,000 students** **2013**
Nationwide Universities Entrance Exam *Iran*

Research Experience

• **Research Assistant, Robotics and Machine Learning** **Prof. Cynthia Matuszek**
IRAL Lab, University of Maryland, Baltimore County *Feb. 2019 - Present*

• **Research Assistant, Deep Learning** **Prof. Hadi Farahani**
Shahid Beheshti University *Nov. 2017 - May 2018*

• **Research Assistant, Computational Geometry** **Prof. Farnaz Sheikhi**
Shahid Beheshti University *Feb. 2017 - May 2018*

• **Research Assistant, Image Processing** **Prof. Alireza Tavakoli**
Shahid Beheshti Univeristy *May 2017 - July 2017*

Teaching Experience

• **Teaching Assistant, Algorithms** — **Prof. Paul Burkhardt**
University of Maryland, Baltimore County — *Jan. 2019 - May 2019*

• **Teaching Assistant, Algorithms** — **Prof. Christopher Marron**
University of Maryland, Baltimore County — *Sept. 2018 - Dec. 2018*

• **Teaching Assistant, Computational Geometry** — **Prof. Farnaz Sheikhi**
Shahid Beheshti University — *Sept. 2017 - Jan. 2018*

• **Teaching Assistant, Compiler Theory** — **Prof. Adel Hosseini**
Shahid Beheshti University — *Sept. 2017 - Jan. 2018*

• **Teaching Assistant, Automata Theory** — **Prof. Hadi Farahani**
Shahid Beheshti University — *Feb. 2016 - July 2016*

Conference Reviewer

• **Intelligent Robots and Systems (IROS)** — **2020**

Memberships and Services

• **Iranian Graduate Student Association Secretary** — **2018 - 2019**
University of Maryland, Baltimore County — *Maryland, USA*

• **IOI Office Member** — **Aug. 2017**
The 29th International Olympiad in Informatics — *Tehran, Iran*

• **Executive Director of "Pardazeh"** — **Sept. 2014 - Nov. 2015**
The Scientific Journal of Computer Science Association, SBU — *Tehran, Iran*

Technical Skills

• **Programming and Tools**:
  ◦ Python, C++, Java
  ◦ PyTorch
  ◦ MATLAB, Prolog
  ◦ LaTeX, HTML, Markdown
• **Operating Systems**: Mac OS X, GNU/Linux

Notable Projects

• Mixture Models: Implementing different mixture models using Expectation Maximization (EM) algorithm
• LARI: An AI agent to play a card game similar to spades using Monte Carlo Tree Search algorithm combined with a simple rule based agent
• Grounded Language Learning using manifold alignment techniques and triplet loss
• **Pedestrian Detection** by Support Vector Machine and Histogram of Oriented Gradients in **MATLAB**
• An adversarial **2D game** in **C++** with **minimax** algorithm for the agent
• A talk on **Principal Component Analysis (PCA) and Eigenface** at Shahid Beheshti University
• **Ball Mania**, a **2D game** developed in **C++** using its graphic library
• **Chromatic Art Gallery Problem** for specific type of polygons
• **Genetic algorithm** to solve a modified version of the **maze problem** in which we have to put different shapes of pipes in each cell to convey the water from source to destination
• **Prolog** program to solve Einstein's riddle

Languages

- **Persian (Farsi)**: Native
- **English**: Fluent
- **Spanish**: Beginner
- **Arabic**: Intermediate

Other Skills

- Piano: Intermediate
- Soccer: Professional player