

# Reza Etemadi Idgahi

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## Contact Information

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## Education

- **Master of Science in Computer Science** 2019 – 2021  
The University of Texas at Arlington, USA GPA: 4.0
  - Thesis: Learning Hierarchical Traversability Representation for Efficient Multi-Resolution Path Planning
  - Supervisor: Prof. Manfred Huber
- **Bachelor of Science in Computer Engineering** 2014 – 2018  
Ferdowsi University of Mashhad, Iran GPA: 3.5

## Work Experience

- **Software Engineer, Paycom** Jan 2021 – Dec 2021
  - Worked on the tax reporting system by driving the development of new functionalities from concept to production, using C# and .NET framework.
  - Optimized the data processing module by analyzing algorithms' performance and tradeoffs, which resulted in a 35% speedup in processing large data.
  - Utilized modern design patterns, data structures, and advanced algorithms to devise scalable software architectures and solve technical problems.
  - Employed test-driven development to write clean and efficient code and build robust and well-tested production quality software.
  - Performed debugging, troubleshooting, and code review to maintain the overall health of the codebase, resulting in a 20% decrease in the number of client tickets.
- **Research Assistant, Learn Lab, UT Arlington** Oct 2019 – May 2021
  - Developed a novel path planning method that reduces the path planning time in large maps by 60% by designing, training, and analyzing a deep convolutional neural network using TensorFlow and then utilizing it in a hierarchical system to provide an efficient heuristic to guide path planners like A\* and RRT.
  - Optimized the process of training and testing the system by 80% by utilizing multi-processing and implementing automatic hyper-parameter optimization.
- **Software Engineer, XPeng Motors** Mar 2019 – Jul 2019
  - Developed an optimized and highly modular pipeline for perception using C++ and python, which improved the performance by 50% compared to the existing pipeline while allowing it to be reused in different environments.
  - Worked closely with the ML team to improve the performance of the Mask-RCNN model, which led to work with several profiling tools to optimize runtime and resource consumption.
  - Developed several auxiliary programs to monitor and debug the perception module and its communication with other modules.
- **Research Assistant, Robotics Lab, Ferdowsi University** Dec 2015 – Sep 2018
  - Developed a robust omnidirectional walk engine for NAO robots.
  - Used evolutionary optimization algorithms to improve the performance of robots.
  - Implemented Artificial Potential Field for path planning.
  - Modified 2D soccer simulation server to create new games and challenges.
  - Programmed software and utilities for analysis of 2D soccer simulation.
- **Software Engineer, Menulit Inc.** Oct 2016 – Sep 2018

	<ul style="list-style-type: none"> <li>▪ Created a system for menu management and online ordering in restaurants and cafes, consisting of a backend server, an android application for customers, and a web application for waiters or managers of the restaurant.</li> </ul>
	<ul style="list-style-type: none"> <li>• <b>Teacher Assistant, Ferdowsi University</b> <span style="float: right;"><i>Sep 2017 – Jun 2018</i></span> <ul style="list-style-type: none"> <li>▪ Courses: Artificial Intelligence, Operating Systems, Compiler Design Concepts</li> </ul> </li> <li>• <b>Lecturer, Ferdowsi University</b> <span style="float: right;"><i>Sep 2017 – Dec 2017</i></span> <ul style="list-style-type: none"> <li>▪ Course: Introduction to Linux, C++, and RoboCup 2D soccer simulation</li> </ul> </li> <li>• <b>Intern, Security Lab, California State University of Long Beach</b> <span style="float: right;"><i>Aug 2017</i></span> <ul style="list-style-type: none"> <li>▪ Implemented a project consisting of an android application and a restful JavaScript server that blocks advertisements based on traffic capturing and statistical analysis.</li> </ul> </li> </ul>
Skills And Expertise	<ul style="list-style-type: none"> <li>• <b>Programming Languages:</b> C++, Python, MATLAB, Linux Shell Script, C#, Java</li> <li>• <b>Web Frontend &amp; Backend Development:</b> JavaScript, Java EE, SQL</li> <li>• <b>Frameworks and libraries:</b> TensorFlow, PyTorch, NumPy, pandas, Qt, Django</li> <li>• <b>Other:</b> Android Development, Web Development</li> </ul>
Publications	<ul style="list-style-type: none"> <li>• Ganesh, P.; Etemadi Idgahi, R.; Basavanahally Venkatesh, C.; Ramesh Babu, A.; Kyrarini, M. (2020). Personalized System for Human Gym Activity Recognition using an RGB Camera. <i>In Proceedings of the 13th. Conference on Pervasive Technologies Related to Assistive Environments (PETRA '20)</i>, Corfu, Greece</li> </ul>
Presentations at Workshops	<ul style="list-style-type: none"> <li>• Linux Build Automation Tools: Configure, Make &amp; Make Install, <ul style="list-style-type: none"> <li>– <i>Linux fundamentals workshop at Ferdowsi University, 2017 and 2018</i></li> </ul> </li> <li>• Understanding Android Manifest, <ul style="list-style-type: none"> <li>– <i>Android programming workshop at Ferdowsi University, 2016</i></li> </ul> </li> </ul>
Honors And Awards	<ul style="list-style-type: none"> <li>• RoboCup 2D Soccer Simulation International Awards <ul style="list-style-type: none"> <li>▪ 2<sup>nd</sup> place in Technical Challenge in RoboCup Asia-Pacific Championship, Iran, 2018</li> <li>▪ Participating in International RoboCup Championship, Japan, 2017</li> <li>▪ 3<sup>rd</sup> place in NasirCup Competition, Iran, 2017</li> <li>▪ 1<sup>st</sup> place in Portuguese Open Championship, Portuguese, 2017</li> <li>▪ 2<sup>nd</sup> place in Iran Open Championship, Iran, 2017</li> <li>▪ 1<sup>st</sup> place in Iran Open Championship, Iran, 2016</li> </ul> </li> <li>• RoboCup 3D Soccer Simulation International Awards <ul style="list-style-type: none"> <li>▪ 3<sup>rd</sup> place in RoboCup Asia-Pacific Championship, Iran, 2018</li> <li>▪ 4<sup>th</sup> place in Iran Open Championship, Iran, 2018</li> <li>▪ Participating in International RoboCup Championship, Japan, 2017</li> <li>▪ 1<sup>st</sup> place in Technical Challenge in Iran Open Championship, Iran, 2017</li> </ul> </li> <li>• Recipient of exceptional talent fellowship from dean's office, 2016</li> <li>• 3<sup>rd</sup> place in Mashhad mobile programming marathon, 2016</li> <li>• Member of "Students Scientific Association" in Ferdowsi University, 2016</li> <li>• Participated in 5<sup>th</sup> ACM Ferdowsi Collegiate Programming Contest, 2016</li> <li>• Participated in 4<sup>th</sup> ACM Ferdowsi Collegiate Programming Contest, 2015</li> <li>• Participated in 2<sup>nd</sup> Sharif mobile programming marathon, 2015</li> <li>• Participated in 1<sup>st</sup> Tosan mobile programming marathon, 2015</li> <li>• 2<sup>nd</sup> place in Khwarizmi Youth Award, 2011</li> </ul>