

Education

M.S. in Biosystems Engineering

Mississippi State University

Starkville, MS, USA

July 2024 – August 2026 (Expected)

Thesis: Advancing MAVS for Real-Time SLAM in Agricultural Robotics

Advisor: Dr. Xin Zhang

GPA: 3.78/4.00

M.S. in Industrial Engineering

Khaje Nasir University of Technology

Tehran, Iran

September 2019 – September 2022

Thesis: Stock Price Prediction Using Artificial Intelligence

GPA: 3.77/4.00

B.S in Industrial Engineering

Garmsar University

Semnan, Iran

September 2014 – September 2018

Dissertation: The Feasibility Study of a Fire Extinguisher Production Using Simulation under Uncertainty

GPA: 3.41/4.00

Research Interests

• Methods: Machine/Deep Learning For Perception and Modeling, 2D/3D Mapping, Sensor Fusion, Autonomous Navigation, Computer Vision, Data-Driven Decision-Making

• Applications: Robotics, Simulation of Automated Systems, Digital Twins, Healthcare

Work Experience

• Research Assistant – Agricultural Autonomy Simulation

2024 – Present

Mississippi State University, Starkville, MS, USA

- Advanced MAVS simulation software by extending ROS2 integration for real-time autonomy testing using C++, and Python.
- Integrated SLAM algorithms (RTAB-Map, ORB-SLAM3, NICE-SLAM) with MAVS and the Amiga robot using ROS2 Humble.
- Designed URDFs, TF trees, and performed synchronized data collection (RGB-D, IMU, GPS) for SLAM benchmarking.
- Conducted research at the Agricultural Autonomy Institute and Center for Advanced Vehicular Systems (CAVS), under the MS Agricultural and Forestry Experiment Station (MAFES).

• Expert in Designing and Developing a Trading System

2022 – 2024

Arman Eghtesad Asset Management, Tehran, Iran

- Designed and developed analysis systems to extract information from large scale data using Python, C++, and SQL.
- Implemented advanced order types, including limit orders, stop-loss orders, and trailing stops, to enhance trading flexibility and risk mitigation.

Research Work

• Advancing MAVS Simulation with Real-Time SLAM Integration with Dr. Xin Zhang

2024 – Present

This research enhances the MAVS simulation platform by integrating SLAM algorithms via a ROS2 bridge. It enables real-time localization and mapping for autonomous navigation in agricultural robots.

Developed ROS2-based pipelines to simulate and evaluate SLAM performance on the Amiga Farm-ng robot using ZED2i camera, RTK-GPS.

• **Classification of Weed Species Using Transfer Learning with Dr. Xin Zhang and Dr. Hussein Gharakhani**

Fall 2024

This project developed a weed classification pipeline using data augmentation techniques and transfer learning.

• **Autonomous Tractor Simulation with Dr. Hussein Gharakhani**

Fall 2024

Contributed to the open-source AAI-Tractor-Project, focused on agricultural autonomy simulation using ROS2. Created and refined URDF models for the tractor platform, including link configuration and TF frame setup. Assisted in developing and debugging Gazebo simulation environments to support autonomous navigation testing.

• **Stock Price Prediction Using Artificial Intelligence Using Python with Dr. Ebrahimi and Dr. Mirzaee**

Summer 2022

This study introduces a model that accomplishes two primary objectives: firstly, providing buy or sell recommendations, and secondly, forecasting stock prices through the application of Deep Learning techniques.

• **Studying The Impact of Information Asymmetry And Dividends payable on Stock Price Crash Risk Using Eviews with Dr. Samimi**

Fall 2020

Recognizing the substantial influence of stock price crash risk on trading decisions, this study investigates the effects of information asymmetry and dividend payments on stock price crash risk.

• **Developing Zarnowitz and Mincer Regression to Estimate the Expected Shortfall with Dr. Mirzaee**

Spring 2020

This study evaluates various risk assessment criteria by utilizing the predicted expected shortfall as an interval parameter for comparison.

• **The Feasibility Study of a Fire Extinguisher Production Using Simulation under Uncertainty with Dr. Ahmadi**

Spring 2019

This project equips decision-makers with the information needed to make an informed choice regarding the project's viability and risk mitigation strategies.

• **Timing of a building project using Microsoft Project- a case study with Dr. Ahmadi**

Summer 2019

This project efficiently and effectively plans, executes, and closes a project, meeting its objectives while managing resources, time, scope, quality, and risks.

Skills

• Programming Languages	Python, GAMS, MSP, LaTeX, Microsoft Office, Rstudio, C++.
• Machine Learning Skills	TensorFlow, Keras, PyTorch, Transfer Learning, OpenCV, Scikit-learn, Numpy, Pandas
• 3D Modeling & Hardware	SolidWorks, FreeCAD, Sensor Calibration
• Languages	English (TOEFL=88: W:24, S=21, L=23, R=20), Persian (Native), Arabic (Elementary)
• Personal	High responsibility, Interested in learning, High teamwork ability, Critical thinking skills

Certificates

• Digital Twins by University of Michigan	Coursera 2025
• Advanced Computer Vision with TensorFlow	Coursera 2024
• Image Recognition for Beginners Using CNN in R Studio	Udemy 2023
• Complete Python and Machine Learning in Financial Analysis	Udemy 2022
• 2022 Python Bootcamp for Data Science Numpy Pandas and Seaborn	Udemy 2022
• The Python Programming Comprehensive Bootcamp	Udemy 2021
• Data Science: Python for Data Analysis Full Bootcamp	Udemy 2021

Conference Presentations

Oral Presenter, AI in Agriculture Conference – “Advancing SLAM in Agriculture by integration of Neural Radiance Field”	2025
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Publications

Bakhtiari, P. A., Zhang, X., Watanabe, K., Goodin, C., Thomasson, J. A. “Advancing MAVS Simulation Environment for Visual SLAM Benchmarking Purpose in Cotton Field” In Preparation, 2025

Symposium Presentations

Selected for Oral Presentation, MSU Graduate Student Research Symposium Fall 2025, “Real-Time SLAM / Vision / Sensor Fusion in Autonomous Agriculture.”	Oct-2025
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Honors and Awards

• Achieved rapid career advancement, promoted to a leadership position	2020
• Ranked 289th among 7000 Participants in the University’s Entrance Exam	2019
• Author of Garmsar Student’s Scientific Association Magazine	2015–2017
• Winner of Two Inter-School Badminton Competitions	2010–2013
• Best Actress Award Winner in Tehran Province Theater Competition	2007–2009

References

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Dr. Xin Zhang Assistant Professor Email:xin.zhang2@uga.edu	Mississippi State University Phone:(662) 325-3853
Dr. Christopher Goodin Associate Research Professor Email:cgoodin@cavs.msstate.edu	Mississippi State University Phone:(601) 634-8203