# FAHIMEH ORVATI NIA

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## Research Interests

- Machine Learning and Deep Learning
- Artificial Intelligence
- Computer Vision and Image Processing
- Network Security and Internet-of-Things

## Education

**PhD, Computer Engineering (In Progress)**
Texas AM University, College Station, TX, USA Jan 2025 – Present
Research Areas: AI, Computer Vision, and Machine Learning

**M.Sc., Electrical Engineering**
University of Notre Dame, IN, USA Aug 2023 – Jan 2025
*Focused on time-series anomaly detection using GANs and pedestrian intention prediction with Graph Neural Networks.*

**B.Sc., Electrical Engineering (Control)**
Amirkabir University of Technology, Tehran, Iran Sept 2016 – Jan 2020
*Developed a Zigbee-based intelligent HVAC system with enhanced security features.*

## Experience

**Teaching Assistant, University of Notre Dame**
*Courses:* Introduction to Electrical Engineering (Fall 2023), Signals and Systems (Spring 2024)

**Research Assistant, University of Tehran**
Worked on machine learning for the classification and clustering of musical instruments. Jan 2022 – June 2023

**IoT Developer, NOICT Company, Tehran, Iran**
Developed wireless communication between IoT devices using the Zigbee protocol. July 2021 – Oct 2021

**Teaching Assistant, Amirkabir University of Technology**
Guided students in designing control systems using MATLAB Simulink. Sept 2020

## Academic Projects

- **GAN for Time-Series Anomaly Detection**: Designed a GAN architecture with custom loss functions for time-series data.
- **Image Generation with DCGANs**: Trained deep convolutional GANs for generating synthetic images.

- **Self-Balancing Robot**: Implemented PID, fuzzy logic, and neural network-based controls for a balancing robot.
- **Rubik's Cube Solver**: Developed a C++ algorithm using Depth-Limited Search for solving Rubik's Cube.
- **Smart Home Automation System**: Created an IoT-based system for remote appliance control.
- **Musical Instrument Classification**: Applied machine learning techniques to classify acoustic features of instruments.

## Honors and Awards

- Awarded a national full undergraduate scholarship in Iran.
- Ranked among the top in courses on Computational Intelligence and Communication Systems during B.Sc.
- Secured the top rank in the Iranian National University Entrance Exam for Master's degree.

## Computer Skills

- Programming: Python (Advanced), C++ (Advanced), MATLAB, LaTeX
- Frameworks: TensorFlow, Keras, PyTorch
- Embedded Systems: STM32, Raspberry Pi, Arduino

## Languages

- English: Professional working proficiency