

# Moh Kashani

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## Professional Summary

Dedicated and innovative Ph.D. candidate in Computer Engineering with over 5 years of experience in embedded systems and deep learning. Strong background in bare-metal programming, MCU firmware development, and PCB design, coupled with advanced expertise in machine learning (ML) and deep learning (DL) for wireless security and IoT applications. Proven track record in designing, implementing, and optimizing IoT and automation systems across various industries, including agriculture and healthcare.

## Experience

Jan 2023 - Dec 2023

Corteva Agriscience, Johnston, IA - **Software and Automation Engineer Intern**

- Designed and deployed 350+ PCB boards for a \$700,000 seed tracking project, integrating Raspberry Pi Pico with CAN module over SPI for real-time data transfer.
- Programmed the Raspberry Pi Pico using C/C++ SDK to communicate with other boards.
- Developed PCBs and embedded software for seed quality automation using micropython and c#, with a focus on system optimization and machine learning for quality checks.

August 2019 - PRESENT

Iowa State University, Ames, IA - **Wireless Security Graduate Research Assistant**

- 5G security
  - Proposed and developed a mathematical framework for integrity checks in 5G networks to improve security for critical applications.
- WBAN security in WBAN:
  - Programmed ESP32 to connect to BLE servers and used Software Defined Radios (SDR) to capture BLE signals for authentication research.
  - Analyzed the authentication security of IEEE 802.15.6 and BLE standards for Wireless Body Area Networks (WBAN) .
  - Applied deep learning techniques to analyze wireless signals for anomaly detection and authentication.
- Course projects:
  - Implemented Wi-Fi localization and wireless distributed banking system using C on ESP32 communicating to a database using serial communication, focusing on integrity and availability of the service.

## August 2015 - July 2019

*AmirKabir University of Technology, Tehran, Iran - Senior Design Project (Robot Cars)*

- Led a multi-agent system project, designing and programming three robot cars using C for embedded control systems.
- Developed and implemented a digital control system for the robot cars, enabling real-time response and coordination between the agents.
- Applied machine learning techniques to enhance robot car navigation and decision-making processes.
- Awarded 2nd best senior design project and recognized for innovation in embedded system design.

## Education

Expected to graduate in Dec 2024

**Iowa State University, Ames, IA** - *Ph.D. in computer engineering*

May 2024

**Iowa State University, Ames, IA** - *Masters in computer Engineering*

Aug 2015 - Jul 2019

**AmirKabir University of technology, Tehran, Iran** - *BS in Electrical engineering*

Ranked 1st in class 2019 and won the 2nd best senior design project award.

## Skills

**Programming:** C, C++, Python, Micropython, MATLAB

**Machine Learning & Deep Learning:** CNN, AutoEncoder, TensorFlow, PyTorch, Scikit-learn

**Platforms:** Raspberry Pi Pico, ESP32, Bare-Metal MCUs, Linux

**Tools & Libraries:** Fusion 360, KiCad, CMake, I2C, SPI, BLE, AWS, MongoDB

**Embedded Systems Expertise:** Bare-metal programming, PCB design, low-power MCU development, real-time data processing

**Machine Learning Expertise:** Anomaly detection, wireless security, signal processing, and optimization using ML/DL

**Soft Skills:** Strong collaboration with cross-disciplinary teams, problem-solving, innovation-driven, self-motivated