

# Saeed Bazargan

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## Profile

Embedded systems and robotics engineer with extensive experience in real-time AI applications on microcontrollers, sensor integration, and mobile robot control. Proven research experience with publications in international RoboCup competitions. Seeking a PhD position in robotics and embedded AI to advance research in efficient AI-based control and perception systems.

## Experience

**Freelancer** (May 2025 – Present)

- Developed a ROS2-integrated two-wheeled rescue robot using STM32 and Micro-ROS.
- Implemented real-time MobileNetV2 inference on ESP32-CAM using TensorFlow Lite Micro.
- Built an Ethernet-to-RS485 gateway, reducing integration time of an industrial system by 90%.

**Embedded Systems Engineer**, TOSAN TECHNO (Nov 2023 – May 2025)

- Integrated Quectel EC200 4G/2G modules to enhance communication reliability.
- Designed a secure Cortex-M bootloader using RSA-2048 for authenticated firmware updates.
- Improved data acquisition by 40% using a FreeRTOS-driven UART–SD logging pipeline.

**Electronic Researcher**, Mechatronics Research Lab (MRL) (Aug 2016 – Apr 2024)

- Designed a USB2Dynamixel interface supporting both TTL and RS-485.
- Increased UART throughput by 25% via optimized FIFO buffering.
- Improved IMU (MPU9250/BNO055) data quality through SPI optimization and FreeRTOS tuning.

**Electronics Student**, ZSR Robotics Group (Dec 2009 – Jul 2015)

- Designed an Atmega128-based motor controller improving rover motion stability.
- Implemented C#.NET-based object detection with 15% improved accuracy.
- Developed semi-autonomous rescue robots achieving 90% navigation autonomy.

## Publications

**MRL Team Extended Abstract for Humanoid Kid Size League of RoboCup 2023**, Bordeaux, France (July 2023)

- Hamed Mahmudi, **Saeed Bazargan**, Arash Rahmani, Abolfazl Ashayeri, Fatemeh Rashnozadeh, Alireza Golchin, Ramtin Kosari, Sina Khoshzaban Khosroshahi, Mehdi Zeinali, and Maryam Shaban

**MRL Champion Team Paper in Humanoid TeenSize League of RoboCup 2019**, Sydney, Australia (July 2019)

- Meisam Teimouri, Hamed Mahmudi, Amir Gholami, Mohammad Hossein Delavaran, Soheil Khatibi, **Saeid Bazargan**, Milad Moradi, Bitia Alaei, Arash Rahmani, Kazem Firouzmandi Bandpey, Peyman Fallahzadeh

## Skills

**Embedded AI & Robotics** TensorFlow Lite / TFLM, Micro-ROS, FreeRTOS, ROS2, NAV2, RViz2, OpenCV, Linux

**Programming** C, C++, Python, C#.NET

**Hardware & Interfaces** STM32, AVR, ESP32, SPI, I2C, UART, RS485, RS232, GSM, Ethernet, GPS

**Tools** Altium Designer, STM32CubeIDE, CodeVision (AVR), Doxygen, FreeCAD, Git

**Languages** Persian (Native), English (Proficient)

## Education

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**M.Sc. Electrical Engineering**, QIAU, Iran (2021–2025)

**B.Sc. Electrical Engineering**, QIAU, Iran (2016–2021)

## Honors

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- **RoboCup** — (2017-2021)
  - 2nd Place, Humanoid League, Bordeaux, France
  - 1st Place, Humanoid League, Sydney, Australia
  - 2nd Place, Humanoid League, Montreal, Canada
  - 1st Place, Humanoid League, Bangkok, Thailand
- **IranOpen** — (2017-2023)
  - First Place, Humanoid League, Tehran, Iran, 2023
  - First Place, Humanoid League, Kish, Iran, 2018
  - Second Place, Humanoid League, Tehran, Iran, 2017