

Azra Rastoder

Electronics Engineer | AIoT Specialist | MSc Candidate

Focus: *Application of AIoT Systems in Medicine*

Montenegro

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Professional Profile

Electronics Engineer and Master's student in Electronics with a strong focus on Artificial Intelligence for Internet of Things (AIoT), particularly in medical and healthcare applications. Experienced in the design and implementation of wearable medical devices, biomedical sensor systems, real-time data acquisition, and embedded AI deployment on resource-constrained platforms. Actively involved in the full AIoT development lifecycle, including system architecture design, signal conditioning, data preprocessing, machine learning model training, validation, and embedded implementation. Strong analytical background combined with hands-on engineering skills and experience in international educational and professional environments.

Core Expertise

- Artificial Intelligence for IoT (AIoT) systems
- Medical and healthcare IoT applications
- Wearable medical devices
- Biomedical sensors and data acquisition
- Embedded systems and edge AI
- Biomedical signal processing and analysis
- Low-power system design
- System integration and validation

Technical Skills

- **Embedded Platforms:** ESP32, Arduino, Nano 33 BLE Sense
- **Programming Languages:** C, C++, Python, MATLAB, Java, SQL
- **AI & Data Processing:** signal preprocessing, feature extraction, classification, model evaluation
- **Signal Processing:** ECG analysis, FFT, filtering, spectral analysis
- **Hardware Design:** analog front-end design, signal conditioning, noise reduction, ADC/DAC integration
- **Design & Simulation Tools:** KiCad, LTSpice, MATLAB
- **Operating Systems:** Linux, Windows

Projects and Research Experience

- **ESP32-Based Wearable ECG Device with AI Diagnostics**

Designed and implemented a wearable ECG monitoring system, including biomedical signal acquisition, analog front-end design, noise filtering, feature extraction, and AI-based rhythm classification. Focused on real-time embedded deployment and low-power operation.

- **Breath Acetone Detection Mask**

Developed a wearable IoT system utilizing gas sensors for non-invasive monitoring of metabolic state, with potential applications in diabetes and ketogenic diet monitoring.

- **Mewsic Feeder**

Implemented an embedded audio classification system using Nano 33 BLE Sense to recognize feline vocalizations, demonstrating edge AI techniques under limited computational resources.

- **3D Capacitive Position Sensor**

Designed a custom capacitive sensing system for spatial position detection and gesture recognition, integrating hardware design with embedded signal processing.

Professional Experience

Crnogorska komercijalna banka (CKB), Podgorica, Montenegro

Processing Center Department

Trainee (Jan 2025 – Oct 2025), Officer (Oct 2025 – Present)

- Participated in the integration and maintenance of critical e-commerce payment systems.
- Worked with Linux-based server environments and secure communication mechanisms.
- Gained experience with certificate management (PKI, PGP) and secure data exchange.
- Supported system monitoring, incident handling, and backup and disaster recovery procedures.
- Collaborated with internal teams and external vendors in a high-availability environment.

Education

Master of Science (MSc) in Electronics

2025 – Present

University of Montenegro, Podgorica

Master's Thesis:

“Application of Artificial Intelligence in Medical Wearable Devices – Defining and Evaluating an Optimal Design Flow from Training to Embedded Deployment.”

Specialist Degree in Electronics

2024 – 2025

University of Montenegro, Podgorica

GPA: 9.33

Bachelor of Science (BSc) in Electronics, Telecommunications, and Computer Science

2020 – 2024

University of Montenegro, Podgorica

Certifications

- CPS & IoT Academy – Cyber-Physical Systems, IoT, Embedded Computing, Artificial Intelligence (2025)

- Fortinet Certified Fundamentals in Cybersecurity (2025)

International and Academic Achievements

- FLEX Exchange Scholar, U.S. Department of State – Selected for the Future Leaders Exchange Program (2.3% acceptance rate).
- Diploma Luča A – National award for outstanding academic achievement.

Leadership & Volunteering

- International Education Week (USA, 2017) – Presented Montenegrin culture to 500+ attendees; recognized for outstanding cultural diplomacy.
- Youth Leadership in English Teaching Training (Washington DC, 2018) – Completed certified leadership and teaching workshop.
- Regional Workshops (Armenia, Ukraine, Serbia; 2018–2019) – Participated in programs focused on news literacy, organizing youth educational activities, mental health awareness, and international cooperation.
- International Project "YOU'r Past-Present-Future" (Balkan region, 2018–2019) – Contributed to activities promoting conflict resolution and intercultural dialogue.

Languages

Montenegrin (native), English (C1)