

# REZA DARESTANI

Firmware/Embedded System Developer

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## EXPERIENCE

System Engineer - Hardware/Firmware Developer

FLUTTERCARE - Parttime

Sep 2023 – Present Vancouver, Canada

- Led the multi-disciplinary design and release of the **smart wearable belly band** for monitoring the wellbeing of baby in pregnant individual. Contribute to **electrical, firmware, software, and mechanical design**, while ensuring compliance with **IEC** and **CSA** standards.
- Designed and optimized embedded firmware for **ESP32** microcontroller, improving system efficiency.
- Designed, prototyped, and tested **electrical circuits** and **PCBs**, ensuring reliability in medical application.
- Developed a communication package between firmware and software over **Wi-Fi** and **USART**.
- Key contributor to **verification, validation, risk analysis, and design** for **manufacturing/assembly**.
- Produced **technical documentation** and created detailed design documents including **flowcharts** and **process diagrams**.

Hardware Lead- Hardware/Firmware Developer

TEXAVIE - Parttime

Sep 2020 – Sep 2023 Vancouver, Canada

- Led the multi-disciplinary design and release of the **smart glove and knee brace** for monitoring the hand and knee movement of individuals. Contribute to **electrical, firmware, software, and mechanical design**, while ensuring compliance with **IEC** and **CSA** standards.
- Designed **schematic diagrams** and **PCB layouts** including **analog, digital, sensors, data converters, power supplies, and microcontrollers**.
- Designed and optimized embedded firmware for **BMD350 (ARM Cortex-M + Bluetooth)** microcontroller, improving system efficiency.
- Conducted **debugging, problem-solving, root cause analysis**, and implemented **corrective actions** to improve product **reliability** and **performance**.
- Using **JTAG** to debug the **hardware and firmware** of the project.

Research Assistant

School of Biomedical Engineering, UBC

Sep 2018 – Sep 2024 Vancouver, Canada

- Developed the novel **Smart Ureteral Stent for Wireless Kidney pressure monitoring** using **microfabrication techniques**.
- Oversaw lab operations, ensuring compliance with safety and procedural standards.
- Maintained and calibrated lab equipment, including power supplies, oscilloscopes, and spectrum analyzers.
- Demonstrate strong **technical writing** skills by effectively communicating complex research findings in high-impact publications.

Electronic Engineer & Project Management

HAMI NOZAD PARS | PARS SECURITY INDUSTRIAL

Sep 2013 – Oct 2018 Tehran, Iran

- Handled projects involving **TFT LCD** technology, **EMWIN, RTOS** systems, and **IoT applications**.
- Conducted **tests and evaluations** on electrical systems and components to ensure functionality, safety, and compliance with standards and regulations.
- Designed and fabricated the **infant INCUBATOR** based on the **STM32F103** microcontroller with a **7-inch TFT + resistive touch display** that based on **Emwin RTOS** firmware.

## COMPUTER SKILLS

C/C++, Python, MATLAB, C#  
µc Prgmrng – ARM Cortex-M  
KiCad, Altium  
SolidWorks, Onshape  
VHDL, Assembly  
MS Office  
Version Control (Git)  
PM Tolls (Jira, Trello)



## KEY EXPERTISE

Real-time data processing algorithms  
Firmware optimization PCB design  
Analog circuits Internet Of Thing (IOT)  
Sensors Wireless communications  
Wi-Fi/BLE/Zigbee RTOS

## STRENGTHS

Real-time data processing algorithms  
Self-motivated Problem-solver  
Detail-oriented Multitasking  
Cross-functional collaboration Innovative

## EDUCATION

B.Sc. in Electrical Engineering  
IAUT – Islamic Azad University Tehran

Sep 2007 – Aug 2010 Tehran, Iran

MSc. in Electrical Engineering  
IAUT – Islamic Azad University Tehran

Sep 2010 – Aug 2013 Tehran, Iran

PhD in Biomedical Engineering  
UBC – University Of British Columbia

Sep 2018 – Aug 2024 Vancouver, Canada

## LANGUAGES

English  
Persian



## PERSONAL INTERESTS

Cycling  
Board games  
Puzzles  
Karate