

# ABOUT

Mohammad Okour is a Ph.D. student in Mechanical Engineering at the University of Nebraska-Lincoln, having started his program in January 2022. His research focuses on MEMS nonlinear dynamics and vibration analysis.

Previously, he worked as a Design and Control Engineer at MARSROBOTICS in Jordan, where he designed educational models and 3D printed parts for UAVs and drones. He has been a Teaching Assistant at both the University of Nebraska-Lincoln and Jordan University of Science & Technology. His technical skills include MATLAB/SIMULINK, LABVIEW, Python, Rstudio, and mechanical prototyping with Autodesk Inventor, SolidWorks, and Creo.

Mohammad holds Master's degrees in Architectural Engineering and Mechanical Engineering. His interests include dynamics, MEMS/NEMS, AI, ML, and 3D printing.



MOHAMMAD OKOUR

# TIMELINE

Graduated with a B.Sc. in Mechanical Engineering in 2018 and an M.Sc. in Mechatronics in 2021, then worked at MARSROBOTICS. Pursuing a Ph.D. since 2022 at the University of Nebraska-Lincoln, with an M.Sc. in Architectural Engineering completed in 2023. Research focuses on MEMS nonlinear dynamics & vibrations.

## EDUCATION

- Ph.D. Student in Mechanical Engineering, University of Nebraska-Lincoln (2022 - Current)
- M.Sc. in Architectural Engineering, University of Nebraska-Lincoln (2023)
  - Thesis: Signal Classification Based on Analog Computing using MEMS Network
- M.Sc. in Mechanical Engineering (Mechatronics), Jordan University of Science & Technology (2021)
  - Thesis: Intelligent Control Strategies for Active Suspension Systems.
- B.Sc. in Mechanical Engineering, Jordan University of Science & Technology (2018)

## RESEARCH INTERESTS

- Dynamics & Vibrations
- MEMS/NEMS
- Artificial Intelligence & Machine Learning
- 3D Printing

## PROFESSIONAL EXPERIENCE

- MEMS Sensing and Neural Computing Lab, UNL
  - Designed experimental hardware and operated advanced measurement instruments.
- Design and Control Engineer, MARSROBOTICS
  - Developed educational models and control systems using MATLAB/SIMULINK.
  - Designed and fabricated 3D models for various applications.
- Teaching Assistant, UNL & JUST
  - Conducted labs and supported experimental coursework in engineering.

# TECHNICAL SKILLS

## Programming Languages

- Python
- R

## Simulation Platforms

- MATLAB
- SIMULINK

## Development Platforms

- NI - MyRio
- NI - CompactRio
- LabVIEW
- Arduino

## Mechanical Prototyping

- Autodesk Inventor
- SolidWorks
- Creo

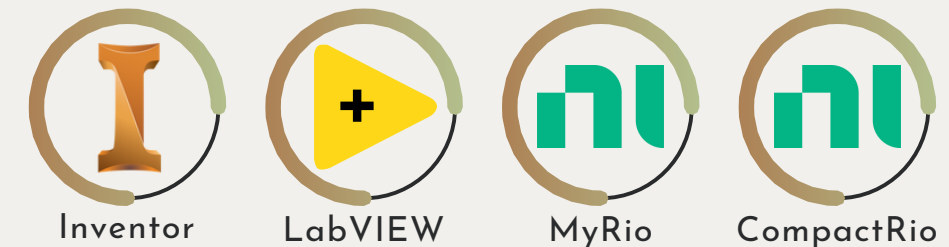
## 3D Printing & Fabrication

- Ultimaker 3D Printers
- CNC machining

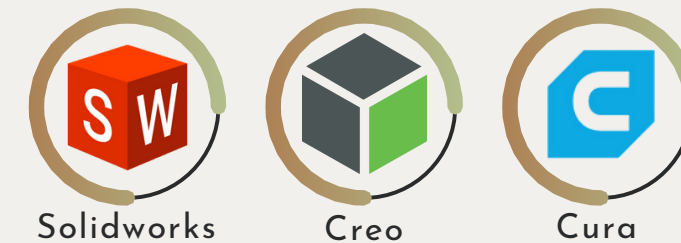
## IDEs and Coding Platforms



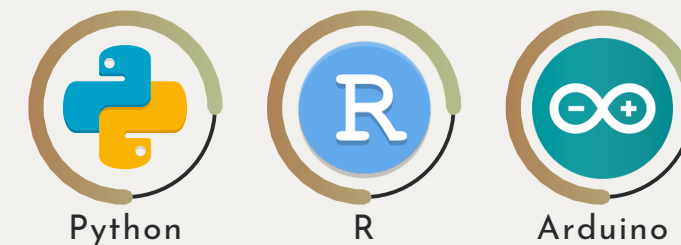
## Development Platforms



## 3D Printing & Fabrication



## Programming Languages



# ABOUT

Mutaz AL Fayad is an Embedded Systems Engineer, IoT Developer, and PCB Designer, also serving as an instructor, Consultant, Online Tech-Content Creator, and Online Courses Creator. With over 5 years of experience at MARS Robotics in Irbid, Jordan, Mutaz is dedicated to expanding his skills in Embedded Systems, PCB, IoT, and Hardware Engineering to develop professional products. Currently pursuing a Ph.D. at the University of Nebraska-Lincoln, his research focuses on MEMS. Mutaz is also the founder of RoKiTech, a tech company specializing in IoT and electronics, where he develops full-stack hardware products for tech companies. He also teaches engineering to fresh graduates.



MUTAZ AL FAYAD

# TIMELINE

Earned a Bachelor's Degree in Electrical Power Engineering and is currently pursuing a Ph.D. in Architectural Engineering. Research interests include Analog Electronics, PCB, MEMS/NEMS, Embedded Systems, and IoT. professional roles in Embedded Systems and IoT engineering.

## EDUCATION

- Ph.D. in Architectural Engineering, University of Nebraska-Lincoln (2023 to Current)
- Bachelor Degree: Electrical Power Engineering, Yarmouk University (2012-2017)

## RESEARCH INTERESTS

- Analog Electronics
- Printed Circuit Boards (PCB)
- MEMS/NEMS
- Embedded Systems
- Internet Of Things (IoT)

## PROFESSIONAL EXPERIENCE

- Teaching Assistant, UNL
- MEMS Sensing and Neural Computing Lab, UNL
  - Handling Electronics designs
  - Manage Experiments setup
  - PCB designs
- Embedded Systems and Hardware Engineer, MARSROBOTICS
  - Designed and Developed MARS-AutoPilot system
  - Designed and Developed MARS Vision (Camera system) PCB
  - Designed and Developed MARS Tracking Antenna System
- Founder and IoT Engineer, RoKiTech
  - Landslide Detection and Early Alarm System
  - Motion Capture Suit
  - Smart Buildings Water Control System

# TECHNICAL SKILLS

## Embedded Systems

- Architectures:
  - ARM (STM32)
  - Microchip (PIC32)
  - Arduino (Advanced)
  - ESP32
- Frameworks
  - BareMetal/HAL
  - RTOS (FreeRTOS)
  - OOP

## Programming Languages

- C (Embedded)
- C++ (Embedded)
- C# (Unity)
- R

## IoT Development

- Embedded Web Development
- Protocols: HTTP, REST, MQTT
- Connectivity: WiFi, Ethernet, GSM, LoRa
- GUI: Unity, Flutter, NodeRed

## PCB Design

- Professional in **Altium Designer**
- Schematic Design
- layout Engineering
- Manufacturing
- Advanced
  - High Speed, RF, Diff. Pairs
  - Impedence Control
  - ESD

## Electronics

- Circuit Design
- LTSpice Simulator
- NI Multisim
- NI LabView

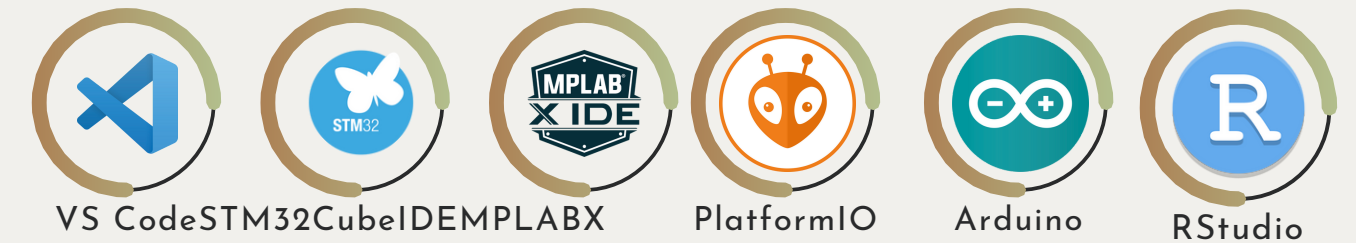
## 3D Design and Fabrication

- Autodesk Fusion 360
- Creality 3D Printers

## Media Tools

- f

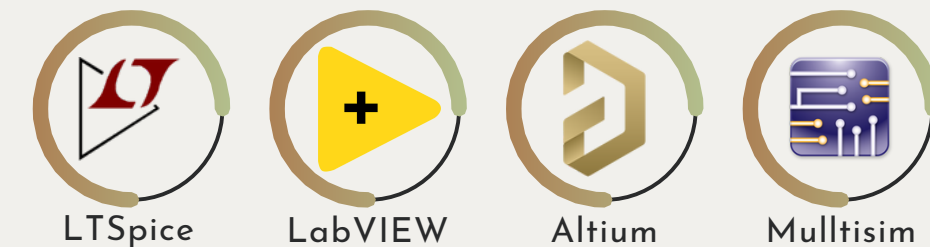
## IDEs and Coding



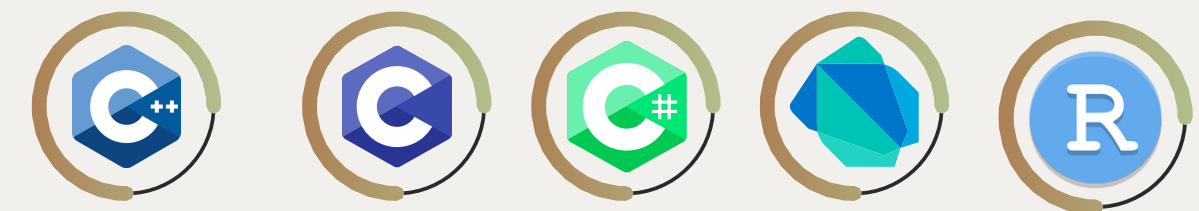
## Development Tools



## Electronics Tools

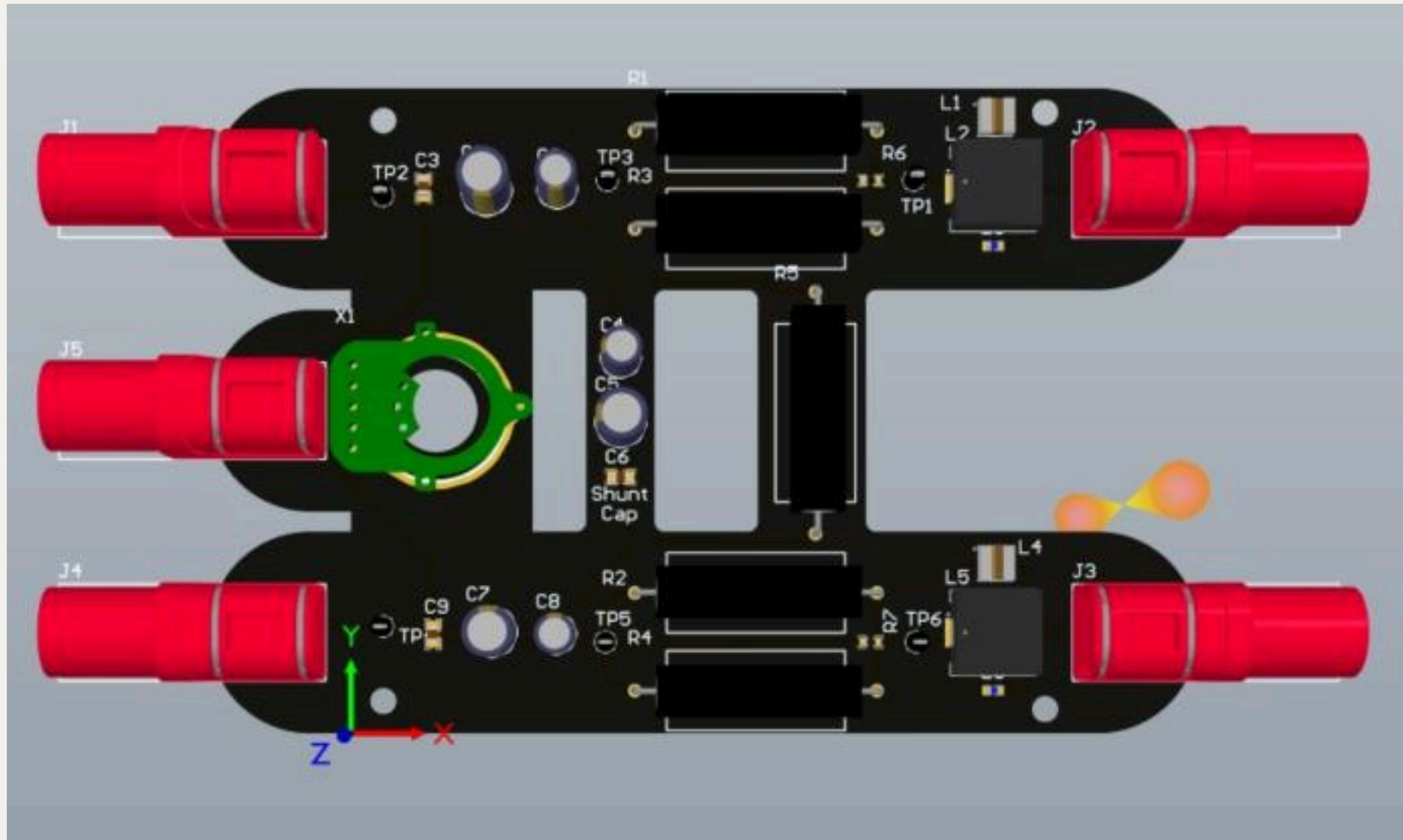


## Programming Languages



## Media Creation Tools





# PCB BOARD

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# Mohammad Megdadi

Ph.D. in Mechanical Engineering  
[mmegdadi2@huskers.unl.edu](mailto:mmegdadi2@huskers.unl.edu)

## Current Experience

- General Electric Aerospace Internship (GE Aerospace, Jun 2024 - Present)
- Graduate Research Assistant (UNL, Jan 2022 - Present)
  - MEMS-Based Analog Computing Technology:  
Design, Optimization, and simulation tasks for MEMS CTRNN Model.
  - MEMS device for sensing and computing on physical hardware.

## Education

- Ph.D. in Mechanical Engineering (UNL, GPA: 3.857/4, In Progress)
- M.S. in Mechanical Engineering (UNL, GPA: 3.9/4, In Progress)
- B.Sc. in Mechanical Engineering (JUST, GPA: 3.54/4)

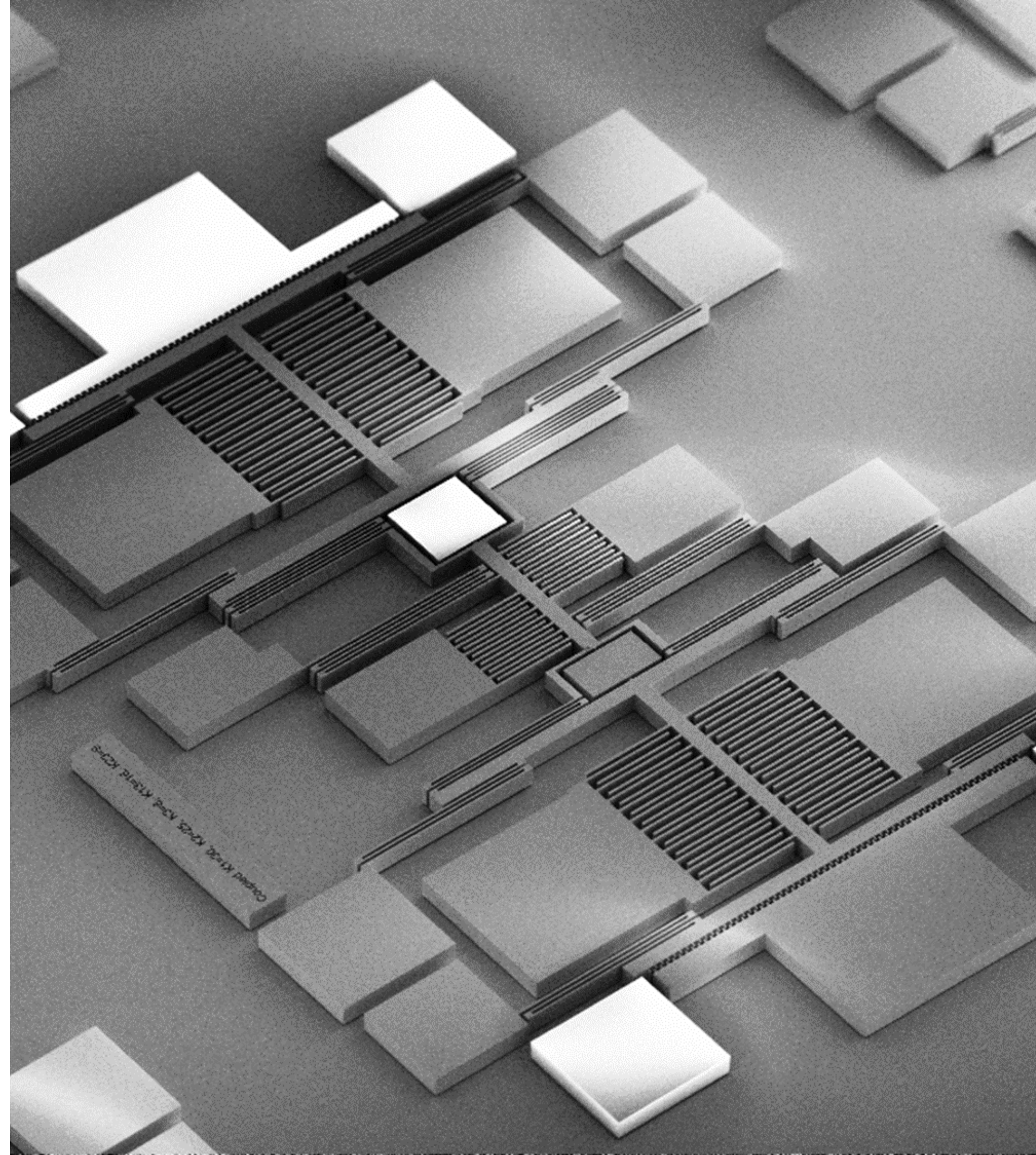
## Key Skills

### Engineering Tools:

- **ANSYS, COMSOL, SolidWorks, KLayout**, L-Edit, and Digital Fabrication.
- **MATLAB**, Arduino, Python, R Studio, C#, and C++.
- Design of Experiments DoE: **Fractional Factorial Design** and **Full Factorial Design**.

## Publications

- MEMS Neural Network for Activity Classification (ASME 2022)
- Three Degree of Freedom Model for MEMS-Based Neural Computing (ASME 2022)
- Near Zero Power Smart Material (Research Square, 2022)





# TECHNICAL SKILLS

## Embedded Systems Skills

### Programming

- MATLAB/SIMULINK
- LABVIEW (Very Good)
- Python
- Rstudio (Intermediate)

### Platforms

- Debugging and Testing- Raspberry Pi (Basic)

### Drivers and Libraries Development

- RTOS (FreeRTOS) Systems- System Hardware Design
- Protocols: UART, CAN, SPI, I2C, More- Connections and Interface
- Advanced Programming Concepts- Hardware Testing
- Macros and Preprocessor- Soldering and Assembly
- Interrupt Driven Firmware- Wiring and Hand-Skills
- Advanced Structs and Classes- Good with different Lab Tools
- Handling Data Transceiving
- Makefiles and Multi-Files Structure- Sensors and Data Acquisition
- Utilize HW Features: Timers, DMA, - H M I a nd Motors Control
- System Buses, System Clocks- System Integrations

## IoT Development

### Experience Concepts

- Web Dev. for IoT internal server: HTML, CSS, JavaScript, MySQL
- IoT Protocols: HTTP, REST API, MQTT, WebSocket, TCP/UDP
- Dev Tools: Postman, Curl
- WiFi/ Ethernet/ GSM, LoRa
- Attention to Security and Encryption - IoT Training and Content Creation

### IoT Support & Platforms

- GUI Dev. for HW Projects: Using Flutter, C#, and QT
- Very Good C/C++ Development
- Worked with Multiple IoT Platforms:
  - IoT Service: Adafruit IO, Thingspeak
  - Custom Platform and MySQL DB
  - NodeRed
  - Specialized Services: AWS, Azure

## TECHNICAL SKILLS

- Programming: MATLAB/SIMULINK, LABVIEW (Very Good), Python, Rstudio (Intermediate)
- Mechanical Prototyping: Autodesk Inventor, SolidWorks, Creo
- 3D Printing & Fabrication: Ultimaker 3D Printers, CNC machining

- **Mechanical Prototyping: Autodesk Inventor, SolidWorks, Creo**
- **3D Printing & Fabrication: Ultimaker 3D Printers, CNC machining**
- **Professional Experience**
- **MEMS Sensing and Neural Computing Lab, UNL**
- **Designed experimental hardware and operated advanced measurement instruments.**
- **Design and Control Engineer, MARSROBOTICS**
- **Developed educational models and control systems using MATLAB/SIMULINK.**
- **Designed and fabricated 3D models for various applications.**
- **Teaching Assistant, UNL & JUST**
- **Conducted labs and supported experimental coursework in engineering.**

# Abdallah: AI Engineer

- **Professional Experience:**

- Research Assistant at University of Nebraska-Lincoln (Jan 2022 - Present).
- AI Engineer at John Wiley and Sons Lab (Jan 2017 - Dec 2021).
- Software Engineer at SEDCO (Jan 2012 - Dec 2017).

- **Selected Accomplishments:**

- Developed a real-time hardware simulation for solving complex machine-learning tasks like human activity detection and signal denoising.
- Enhanced image-to-text solution accuracy by 23%.
- Optimized speech recognition for commercial medical use.

- **Education:**

- Ph.D. Architectural Engineering (Smart Building), University of Nebraska-Lincoln (2026).
- M.S. Architectural Engineering (Smart Building), University of Nebraska-Lincoln (2023).
- M.S. Data Science, Princess Sumaya University for Technology, Jordan (2021).
- B.S. Computer Engineering, Jordan University for Science & Technology, Jordan (2012).

- **Certifications:**

- Oracle Certified Associate, Java SE 8 Programmer.
- Oracle Certified Professional, Java SE 8 Programmer.

## Skills

Python, R, Data Visualization, Computer Vision, NLP, Keras, TensorFlow, scikit-learn, OpenCV, Pandas, NumPy, Hadoop, Spark, Database Analysis, C#, Java(Certified Professional), C, C++, VB, MATLAB, Object-Oriented, JavaScript, jQuery, CSS, HTML, HTML5, XML, ASP.net, Web Services, SQL, MYSQL, ORACLE, Algorithms, WPF, Multithreading Programming, Socket Programming, Image Processing, GIT, Jira, Parallel Programming, Linux, Testing, troubleshooting, and debugging.