

# Nader Hamdan

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## SUMMARY

A passionate and driven Mechatronics Engineer with expertise in robotics, mechatronic systems, and automation. Experienced in designing and implementing electromechanical solutions, sensor integration, and control systems for various applications. Seeking to contribute to cutting-edge robotics technologies that make a positive societal impact.

## EXPERIENCE

### Ascend Solutions – Research Intern

July 2024 – August 2024

- Researched applications of Large Language Models for medical data analysis, enhancing insights in healthcare.
- Fine-tuned and trained models on Hugging Face to improve the quality of extracted medical information.

### Black Arrow Security and Systems – Engineering Intern

July 2024 – August 2024

- Delivered technical support for audiovisual systems, ensuring optimal operation across multiple sites.
- Designed and executed audiovisual setups for events, showcasing a multidisciplinary engineering approach.
- Conducted project reviews with senior management, ensuring timely progress and delivery.

### ITP Media Group – Full Stack Web Developer Intern

June 2023 – August 2023

- Developed an employee task management portal with Angular for front-end and Node.js for back-end optimization.
- Improved SQL database performance and refactored algorithms for scalable, robust system functions.

## PROJECTS

### Derma Cam

Year 2024

- Engineered skin diagnosis system using transfer learning and image analysis techniques to enhance healthcare accessibility.
- Designed a camera movement system with SolidWorks, integrating Raspberry Pi and Arduino for control.
- Implemented AI and computer vision models with PyTorch and TensorFlow, processing images in MATLAB.

### Wine Capsule Dispenser

Fall 2024

- Designed and simulated the mechanical system for gears, belts, shafts, and bolts in SolidWorks.
- Conducted detailed handwritten calculations to ensure precise analysis and performance validation.

### Automatic Bartender, B.O.T.Y

Spring 2024

- Designed and implemented a conveyor belt with pump controls using fuzzy logic controllers on MATLAB and Arduino.
- Prototyped a custom 3D-printed gripper in SolidWorks for effective beverage mixing.

### Robotic Sorting Arm

Fall 2023

- Designed the robotic arm hardware with SolidWorks for precise manipulation and sorting tasks.
- Integrated Raspberry Pi and Arduino to enable real-time computer vision processing with OpenCV.

### Smart Grid

Spring 2023

- Developed an innovative electricity network using logic units and electrical components.
- Implemented real-time monitoring and efficient electricity transport across multiple grids.

## SKILLS

**Technical skills:** Python (OpenCV, Sklearn, PyTorch, TensorFlow), C++, Linux, Git

**Design & Control:** ROS2, SolidWorks, MATLAB, PLC Programming

## EDUCATION

### Lebanese American University (LAU)

September 2020 – December 2024

Bachelor of Engineering, Major in Mechatronics Engineering

## CERTIFICATIONS AND INVOLVEMENTS

**Administration Officer**, LAU Simulation Models (MUN, etc.)

2021 - 2024

**Second Placement**, Engineering Student Design Competition

2023

**Participation**, LAU Case Competition

2022

**CSWA**, SolidWorks

2021