Nader Bou Hamdan

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PROFESSIONAL SUMMARY

Mechatronics engineer with hands-on experience in robotics software, system integration, and hardware design. Skilled in ROS2, Linux, and SolidWorks. Actively pursuing online and in person certifications and workshops in robotics, embedded systems, and control theory. Passionate about building robust, sensor-integrated robotic platforms through cross-disciplinary engineering.

EXPERIENCES

Junior Consultant, Part Time | MADA International *03/2025 – Present*
- Collaborated with cross-functional teams to support client consultations; conducted data collection and analysis to support research in data-driven solutions and technical reporting.
- Assisted in developing training toolkits, including technical materials, structured learning exercises, and delivery guides.

Lead Instructor, Contract | Freelance & Partnered Programs *06/2023 – Present*
- Led a team of 4 instructors and designed the full STEM camp curriculum at UC Berkeley, covering robotics and coding (Python, JavaScript) fundamentals for more than 100 students.
- Delivered 30+ STEM classes, guiding students through real-world mechatronics projects at American University of Beirut.

Co-Founder, Self-Employed | Re-Tech Services *06/2023 – 08/2025*
- Co-founded and led an initiative to connect local technicians specializing in refurbished laptops and electronics with potential clients, fostering business growth and promoting sustainable tech solutions.
- Managed and offered a range of services including hardware and software upgrades, installations, and troubleshooting, ensuring customer satisfaction and maintaining high-quality service standards.

Transformer Models Researcher, Intern | Ascend Solutions *07/2024 – 08/2024*
- Evaluated retrieval-augmented generation (RAG) techniques and fine-tuned BART models, validating output accuracy through structured test sets and clinical report benchmarks using Python libraries.
- Designed and tested a preprocessing pipeline for medical records, enabling compatibility with transformer-based LLMs.

Audiovisual System Design Engineer, Intern | Black Arrow Security and Systems *06/2024 – 09/2024*
- Integrated AV and IT infrastructure across multiple commercial sites, including designing two real-time event systems for Qatar's 2nd-ranked school; collaborated with electrical and QA teams to ensure system performance.
- Troubleshot networking issues across the company, coordinating with IT support and field teams to restore operations.

Full Stack Web Developer, Part Time | ITP Media Group *05/2023 – 11/2023*
- Developed internal dashboards and system monitoring tools using Angular, Node.js, Git, and Bash to support backend performance tracking; handled backend logic and testing procedures.
- Automated data validation workflows and collaborated with QA to resolve integration issues and streamline bug reporting.

PROJECTS

Derma Detect | AI-Powered Assistive Robot
- Developed a mobile robotic system for skin condition diagnostics using XceptionNET CNN, achieving 90% accuracy.
- Built a mobile robotic system with integrated sensors and camera control for real-time diagnosis; iterated hardware design using SolidWorks and Arduino for robust field testing and deployment.

B.O.T.Y. | Robotic Bartender
- Designed and built a fully automated multi-ingredient liquid dispensing system using Arduino-controlled actuators, integrating fluid systems, precise volume control, and mechanical movement coordination.
- Ran timing tests and improved belt/shaker accuracy by 20% through MATLAB simulation and fuzzy control logic.

Smart Grid System | Logic-Based Energy Distribution Controller
- Designed and simulated a smart power distribution system using PSpice and Quartus, implementing logic control for real-time load balancing and circuit fault isolation; integrated ICs with analog sensors using KiCad.
- Validated system performance using oscilloscopes, logic analyzers, and voltage testing across fault conditions.

SKILLS

Technical Tools: Python, C++, Linux, ROS2, Java, JavaScript, SQL, SolidWorks, LabVIEW, MATLAB, AutoCAD, KiCad
Testing & Installation: Oscilloscopes, Multimeters, Embedded Systems, System Integration, 3D Printing
Languages: English (Native), Arabic (Fluent), French (Beginner)
Certification: Certified SolidWorks Associate (CSWA)

EDUCATION

Lebanese American University (LAU), Chartered by the State of New York | Byblos, Lebanon *09/2020 – 01/2025*
Bachelor of Engineering (BE) in Mechatronics Engineering (ABET Accredited)
- 2nd Place – Engineering Student Design Competition (Robotic Exoskeleton)
- Lead Logistics and Operations – LAU Simulation Models (Model United Nations)