Sofia Maria Baroudi

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EDUCATION

B.S. in Electrical Engineering and Math, Minor in Creative Writing   September 2023 – Present
Stanford University   Stanford, CA, USA

Relevant Coursework:
Ordinary Differential Equations, Applied Matrix Theory, Advanced Programming in C++ (recursion, algorithm analysis, data structures), Introduction to Discrete Mathematics, Introduction to Machine Learning, Introduction to Circuit Design

Research Initiative:
- **Undergraduate Research Project**

Investigating the thermal stability of oxide semiconductors using high-temperature XRD to analyze phase transitions, lattice expansion, and decomposition for advanced high-temperature applications.

Affiliations:
- **Stanford AI Club**: Active Member, 2023 – Present

Participating in hands-on AI projects and technical workshops, and collaborating with peers on applied machine learning initiatives.

- **Stanford Finance Club**: Active Member, 2023 – Present

Attending investment seminars and finance training sessions, and developing foundational understanding of market trends and financial instruments.

INTERNSHIPS

Firmware Engineering Intern   June 2025 – August 2025
Lattice Semiconductor   San Jose, CA

- Developed and refined static analysis workflows for embedded firmware targeting FPGA platforms, leveraging tools like Coverity and Black Duck to detect security vulnerabilities and runtime risks.
- Investigated and modeled complex patterns such as stack-to-global pointer escapes and unsafe message queue handling, leading to the design of a custom detection rule with reduced false positives.

Engineering and Robotics Intern   July 2024 – September 2024
Dubai Future Labs - *Government's first applied R&D lab specializing in robotics and AI*   Dubai, UAE

- Designed and presented an underwater environmental monitoring system that improved real-time data transmission by adapting communication protocols to shifting conditions.
- Integrated advanced sensors into ROV prototypes, enhancing precision in capturing key environmental metrics.
- Authored a technical report on underwater swarm robotics, proposing scalable coordination strategies for environmental and industrial applications.
- Contributed to next-generation ROV development through 3D modeling and field research, while gaining hands-on experience with subsea communication systems.

Operations and Supply Chain Intern   June 2021 – September 2021
G. Vincenti & Sons - *Leading FMCG Distributor*   Beirut, Lebanon

- Analyzed warehouse operations and identified three major distribution bottlenecks, supporting senior management in presenting findings and proposing strategies to optimize warehouse workflows.
- Developed process documentation later adopted as standard training material for onboarding new warehouse staff.
- Gained practical experience in supply chain management, inventory control, and process enhancement within a fast-paced distribution environment.

ENTREPRENEURIAL PROJECT

Founder and Developer   2021 – 2023
Holistic Solar Powered Home Appliance System   Beirut, Lebanon

- Designed and prototyped a solar-powered, off-grid appliance system integrating refrigeration, cooking, charging, Wi-Fi, and lighting to support communities without electricity.
- Secured a U.S. Provisional Patent in 2022 and conducted field testing to validate performance and optimize energy use across diverse environmental conditions.
- Addressed global challenges such as indoor air pollution, CO_2 emissions, and lack of access to basic utilities affecting over 3 billion people, while initiating partnerships with international NGOs to produce and distribute 1,000 units.
- Authored a technical paper detailing the system's design, energy efficiency, and environmental and health impact.

PROFESSIONAL TRAININGS AND DEVELOPMENT

- **Launching Tech Ventures Certificate**, Harvard Business School *(online-based)*, August 2024
- **Women's Empowerment Principles Webinar**, United Nations Global Impact, September 2022
- **Philosophy of Artificial Intelligence Summer 2-Week Course Certificate**, Stanford University, July 2022
- **Building AI With Synthetic Data Webinar**, MIT Horizon *(online-based)*, July 2022
- **Conversational AI – Revolutionizing the Information Age Webinar**, Cognilytica *(online-based)*, July 2022
- **Python Coding Summer Camp**, Imperial Global Summer School, London, UK, Summer 2019
  Youngest student selected for this intensive 10-day programming program.

ATHLETIC ACHIEVEMENTS

Skiing & Swimming – Double National Podium Athlete

- Represented Lebanon in multiple international skiing competitions, including the 2023 World Junior Championships in Sankt Anton.
- Ranked 2nd nationally in skiing (2022); consistently selected for Lebanon's junior national teams.
- Competed in over 20 national and international ski competitions, earning 9 Silver, 1 Gold, and 2 Bronze medals across FIS-sanctioned events.
- Won over 10 national swimming medals between 2013 and 2020, including 3 Gold, 4 Silver, and 2 Bronze, in Lebanese national championships.

COMPETENCIES

Languages: Fluent in English, French, and Arabic; achieved Level HSK2 in Mandarin