

# Sarhana Adhikari

Abu Dhabi, United Arab Emirates

☎ Phone: +971-50-1999-032 ✉ [sarhana.adhikari@nyu.edu](mailto:sarhana.adhikari@nyu.edu) 🔗 [linkedin.com/in/sarhana-adh](https://www.linkedin.com/in/sarhana-adh) 🐙 [github.com/sarhana-adh](https://github.com/sarhana-adh)

## Education

### New York University Abu Dhabi

*Bachelor of Science in Electrical Engineering (Honors)*

**Aug 2020 – May 2024**

*GPA: 3.8*

### Tandon School of Engineering, New York University

*Bachelor of Science in Electrical Engineering*

**Jan 2023 – May 2023**

*Study Abroad Semester*

## Relevant Coursework

- Probability and Statistics
- Applied Machine Learning
- Data Structures and Algorithms
- Computer Vision & Pattern Recognition
- Object Oriented Programming
- Linear Algebra
- Computer Programming for Engineers

## Skills

**Programming Languages:** C++, C, Verilog, System Verilog, VHDL, Python, Javascript, HTML & CSS (Web Development)

**Engineering Tools:** Cadence, Xilinx ISE, Catapult HLS, Altium, AutoCAD

**Other Tools:** MS Office, GitHub, GSuite | Python- Pytorch, Matplotlib, Pandas| Tensorflow

**Engineering Skills:** PCB design, Digital Logic Design, High level Synthesis, Understanding of RTL, Soldering, Power System Engineering, Computer Programming

**Language Skills:** **Fluent:**English, Hindi, Nepali **Intermediate:** French

## Projects and Research

### Senior Year Capstone Project- Self Powered Desalination Unit

**Fall 2023 - Present**

- Researched, designed, and implemented renewable solar power systems to ensure the self-sufficiency of the desalination unit that can provide daily  $40m^3$  of water for 200 people in a team of 3 members.
- Conducted extensive research on solar energy in the UAE, resulting in increase in energy efficiency & cost savings.

### Senior Year Honors Research Project- Autonomous Robotic Navigation

**Fall 2023 - Present**

- Spearheaded an innovative project integrating Large Language Models (LLM) and Large Vision Models (LVM) within the **Unreal Game Engine** to simulate autonomous drone operations through **API integration** of OpenAI under the supervision of Professor Yi Fang.
- Utilized LLM for language processing, enabling drone to understand & execute text-based commands with high accuracy.
- Implemented LVM for visual recognition and processing, enabling the drone to navigate and interact dynamically with simulated environments.
- Successfully integrated OpenAI's ChatGPT into the decision-making process of an autonomous vehicle (drone), effectively enhancing its cognitive capabilities and decision-making accuracy by 50% in comparison to existing algorithms.
- Conducted extensive research on the utilization of Large Language Models and Vision Language Models, such as ChatGPT, to empower autonomous vehicles, laying the foundation for state-of-art AI-driven solutions in the field.

## Work Experience

### Academic Resource Centre (ARC), NYU Abu Dhabi

**Aug 2023 - Present**

*Peer Tutor*

*Abu Dhabi, UAE*

- Served as a peer tutor for engineering course- Advanced Digital Logics, Advanced Circuits, Computer Programming for Engineering
- Provided active feedback to the Academic Resource Center, based on ongoing performance assessments of students, contributing to continuous improvement in tutoring strategies and support services.
- Promoted to the position of lead peer tutor- co-ordinated tutor schedule for 6 tutors, developed flexible shift scheduling strategies to accommodate unexpected staffing changes in the new role.

### European Organization for Nuclear Research (CERN)

**Jun 2023 - Aug 2023**

*Summer Engineer Intern*

*Geneva, Switzerland*

- Selected from a competitive pool of 8000 applicants to collaborate with a multidisciplinary team of 15 scientists and engineers at CERN, and present on my technical contributions for improved data analysis.
- Enhanced Liquid Argon Calorimeter firmware, a critical hardware component of a major scientific experiment at CERN, achieving 8x faster communication and reducing logic usage by 67%, leading to cost savings.
- Meticulously documented firmware development, ensuring comprehensive knowledge transfer for future maintenance.

## **Center for Interacting Urban Network (CITIES), NYU Abu Dhabi**

**Mar 2022 - Jan 2023**

*Research Assistant*

*Abu Dhabi, UAE*

- Collaborated with the Integrated Transport Center (ITC) to secure a substantial traffic sensor dataset covering a significant portion of Abu Dhabi city (over 50 GB of data per month) while effectively bridging communication between the ITC and the research team in understanding of the dataset's structure and requirements.
- Efficiently managed, cleaned, and analyzed the acquired dataset, reducing data redundancy and improving data quality, while providing valuable insights on traffic trends for a team of 5 researchers.
- Designed and implemented data visualizations using Python libraries to effectively communicated traffic patterns and behaviors, facilitating data-driven decision-making for urban planning and business optimization.

## **Design for Excellence Lab, NYU Abu Dhabi**

**Mar 2022 - Aug 2022**

*Research Assistant*

*Abu Dhabi, UAE*

- Simulated code in **Verilog and System Verilog**, and reviewed floor planning for Verilog code in **Xilinx ISE**.
- Researched and implemented UART communication protocol in **FPGA programming** language Verilog. Reviewed the implementation on Register Transfer Level(RTL).
- Attended meetings on research progress of the lab on the topic of logic locking.

## **Leadership**

---

### **Sahana, South-Asian Female SiG**

**Fall 2023 - Present**

*Treasurer*

- Conceived new events, overlooked and ensured programming for Fall semester events with 100% higher attendance than last semester
- Currently working on successful execution of an informative event focusing on career graph Women in STEM

### **International Association for Automation & Robotics in Construction (IAARC) at NYUAD Spring 2021 – Fall 2022**

*Co-founder and Treasurer*

- Founded IAARC chapter at NYUAD, demonstrating effective leadership by attracting and mobilizing a community of 200+ active members within a span of just 1.5 years.
- Managed the organization's finances by overseeing budget requests, ensuring strict adherence to university budget regulations, & effectively managing a budget of 3000 AED to support the successful execution of logistics and events.