

# SARA SAMEER

Singapore | [saraasameer.github.io/](https://saraasameer.github.io/) | [sarasameer991@gmail.com](mailto:sarasameer991@gmail.com) | [linkedin.com/in/sarasameer/](https://linkedin.com/in/sarasameer/)

## RESEARCH INTERESTS

Deep Learning, Model Fusions and Neural Network Architectures for Multivariate Time-Series Analysis, Hybrid Predictive Modeling Approaches with Broad Applications in Interdisciplinary Domains

## EDUCATION

**National University of Computer and Emerging Sciences** **Karachi, Pakistan**

*Bachelor of Science in Computer Science [CGPA: 3.66 / 4.00], Cum Laude*

08/2019 - 06/2023

Relevant Courses: Programming Fundamentals, Data Structures, Object-Oriented Programming, Operating Systems, Information Processing Techniques, Multivariate Calculus, Probability and Statistics

**Harvey Mudd College**

**Claremont, California**

*Summer Exchange Student [Grade: 4.00 / 4.00]*

06/2021 - 08/2021

Relevant Coursework: MATH189R Mathematics of Big Data

## PUBLICATIONS

**2025 | GINET: Integrating Sequential and Context-Aware Learning for Battery Capacity Prediction**

*Under Review at IEEE VTC 2025*

**Sara Sameer**, Wei Zhang, Xin Lou, et al.

**2024 | Systems for Training a Learning Model to Predict a Cycling Characteristic Via a Physics Model**

*US Patent Application No. 18/619,815 – Filed on March 28, 2024*

**Sara Sameer**, Constantin-Daniel Nicolae, Nathan Sun, Karena Yan

**2024 | Optimizing Cycle Life Prediction of Lithium-ion Batteries via a Physics-Informed Model**

*Joint Mathematics Meetings (JMM), Under Review at TMLR*

**Sara Sameer**, Constantin-Daniel Nicolae, Nathan Sun, Karena Yan

## RESEARCH EXPERIENCE

**Singapore Institute of Technology**

**Singapore**

**Research Engineer**

08/2024 – Present

*Supervisor: Dr. Zhang Wei and Dr. Vijay Babu Pamshetti*

- Collaborating on the project “Machine Learning-based Battery Performance Management for Rugged Systems in Tropics” (SIT Ignition Grant) to design customized battery models for data provisioned by **ST Engineering**.
- Developed a model fusion architecture combining Informer transformers for battery state estimation, achieving < 1% error rate in SOC/SOH predictions through multi-step time series forecasting.

**University of California, Los Angeles**

**California**

**Research Intern**

06/2023 – 08/2023

*Supervisor: Dr. Tan Nguyen and Dr. Lingyun Ding*

- Worked on a project along with 3 other colleagues to develop a physics-inspired model for accurately measuring the cycle lifetime of a lithium-ion battery.
- Introduced a multi-stage self-attention training scheme that improved cycle life prediction. This enabled comprehensive forecasts of electric charge capacity curves throughout a battery’s entire lifespan, resulting in predictions that outperformed the baseline model by 34%.
- Presented the research findings at University of California, Los Angeles (2023), **Toyota Research Institute** in San Jose (2023), and Joint Mathematics Meeting (2024) in San Francisco.

## TEACHING EXPERIENCE

National University of Computer and Emerging Sciences

Karachi, Pakistan

Teaching Assistant

09/2021 – 05/2023

- Mentored 40+ students in **Data Structures (Sept 2021–Jan 2022)**, **Probability and Statistics (Sept 2022–Jan 2023)**, and **Numerical Computing (Feb 2023–May 2023)**.
- Increased average assignment scores by 15% through tailored feedback and mentorship.

## INDUSTRY EXPERIENCE

Techlogix

Karachi, Pakistan

Data Scientist

08/2023 – 07/2024

Supervisor: *Salman Akhtar, Dr. Qasim Sheikh*

- Developed a machine learning model for credit scoring, incorporating custom metrics such as portfolio size and the Kolmogorov-Smirnov (KS) Test to enhance efficiency and improve lending decision-making.
- Collected and validated data from SSMS and Excel. Designed Power BI dashboards to extract customer behavior insights and improved dashboard usability.

## HONORS AND AWARDS

- My work on ‘Optimizing Cycle Life Prediction of Lithium-ion Batteries via a Physics-Informed Model’ has been accepted for a **patent by Toyota Research Group**.
- Selected for **Research in Industrial Projects (RIPS) 2023**, funded by National Science Foundation (NSF), among 35 other students from 5000+ applicants, with only 12 spots available for non-US students.
- Selected for **Sister2Sister Exchange Program 2022** among 15 other female students from 3000+ applicants from Pakistan to attend a summer semester in a US University.
- Awarded with the **merit cum need based scholarship** for undergraduate studies **from Orange Tree Foundation** and **Sindh Endowment Government** under Higher Education Program Scholarship.
- Recipient of **Dean’s List Honor and graduated Cum Laude** for outstanding academic performance in Fall 2019, Spring 2020, Fall 2020, Spring 2021, Spring 2022, Fall 2022 and Spring 2023.

## VOLUNTEER AND LEADERSHIP

- Volunteered at Ismaili Civic Singapore, organized and supported wellness initiatives and programs for senior citizens (Aug 2024 – Present).
- Chapter Lead at Association for Computing Machinery’s Council on Women in Computing (2022-23).
- Sign Language Interpreter at ConnectHear (Summer 2020)
- Member of Pakistan US Alumni Network (Since Summer 2021)

## SKILLS

**Programming Language:** Python, C/C++, MATLAB, CUDA

**Research Tools:** Numpy, Pandas, Matplotlib, Scikit-Learn, Tensorflow, PyTorch, Keras

**Other Primitives:** Microsoft Power BI, Latex, SQL, Git, Linux, Flask, Fast API

## REFERENCES

**Dr. Wei Zhang from Singapore Institute of Technology**

Associate Professor | [wei.zhang@singaporetech.edu.sg](mailto:wei.zhang@singaporetech.edu.sg)

**Dr. Susana Serna from University of California, Los Angeles**

Professor and RIPS Program Director | [sserna@ipam.ucla.edu](mailto:sserna@ipam.ucla.edu)

**Dr. Burhan Khan from National University of Computer and Emerging Sciences, Pakistan**

Assistant Professor and Head of Electrical Engineering Department | [burhan.khan@nu.edu.pk](mailto:burhan.khan@nu.edu.pk)