

Sara Sameer

PhD CS, Australian National University

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EDUCATION

The Australian National University Apr 2026

PhD in Computer Science

Advisors: Dr. Ahad Zehmardan and Dr. Jing Jiang

National University of Computer & Emerging Sciences 2019 – 2023

B.Sc. in Computer Science, Pakistan — GPA: 3.66/4.00

Harvey Mudd College Jun 2021

Summer Exchange Program — GPA: 4.00/4.00

Coursework: MATH189R — Mathematics of Big Data

EXPERIENCE

Singapore Institute of Technology Singapore

Research Engineer

08/2024 – 03/2026

Supervisors: Dr. Zhang Wei and Dr. Vijay Babu Pamshetti

- Collaborating on “Machine Learning-based Battery Performance Management for Rugged Systems in Tropics” (SIT Ignition Grant) to develop temperature-aware battery models using ST Engineering data for reliable performance in Singapore’s tropical climate.
- Optimized transformer-based battery models for edge deployment using quantization and physics-guided modeling, enabling real-time prediction on resource-constrained hardware.

University of California, Los Angeles California

Research Intern

06/2023 – 08/2023

Supervisors: Dr. Tan Nguyen and Dr. Lingyun Ding

- Developed a physics-inspired model for accurately measuring the cycle lifetime of lithium-ion batteries, in collaboration with a team of four researchers.
- Introduced a multi-stage self-attention training scheme enabling comprehensive forecasts of electric charge capacity curves throughout a battery’s entire lifespan; outperformed the baseline model by **34%**.
- Presented findings at UC Los Angeles (2023), Toyota Research Institute, San Jose (2023), and Joint Mathematics Meeting, San Francisco (2024).

Techlogix Karachi, Pakistan

Data Scientist

08/2023 – 07/2024

Supervisors: Mr. Salman Akhtar, Dr. Qasim Sheikh

- Developed a machine learning model for credit scoring incorporating custom metrics, including portfolio size and the Kolmogorov-Smirnov (KS) Test, to improve lending decisions.
- Conducted N-gram analysis on transactional narrative data to gain insights into repayment history and borrower behavior.

PUBLICATIONS & PATENTS

Preprints

[1] **PhyMamba: Physics-Modulated Mamba for Robust Battery Health Prognostics**

arXiv preprint, 2026

Sara Sameer, Wei Zhang, Jiale Chen, et al.

Conference and Journal Papers

[3] **PACE: Physics-Aware Attentive Temporal Convolutional Network for Battery Health Estimation**

ACM Symposium of Applied Computing (SAC), 2026

Sara Sameer, Wei Zhang, Kannan Dhviya, et al.

[2] **GINET: Integrating Sequential and Context-Aware Learning for Battery Capacity Prediction**

IEEE Vehicular Technology Conference (VTC), 2025

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

[1] **Optimizing Cycle Life Prediction of Lithium-ion Batteries via a Physics-Informed Model**

Transactions of Machine Learning Research (TMLR), 2024

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

Patents

[2] Predicting Rechargeable Battery Life Using a Two-Headed Autoencoder

US Patent Application No. 18/613,706, 2025

Alexander T. Pham, Sara Sameer, Constantin-Daniel Nicolae, Nathan Sun, Karena Yan

[1] Systems for Training a Learning Model to Predict a Cycling Characteristic Via a Physics Model

US Patent Application No. 18/619,815, 2025

Alexander T. Pham, Sara Sameer, Constantin-Daniel Nicolae, Nathan Sun, Karena Yan

SCHOLARSHIPS AND AWARDS

PhD Research Scholarship, University Research Scholarship & HDR Fee Merit Scholarship	2026
Toyota Research Institute Patent Recognition	2024
Fully Funded Research in Insurial Research RIPS program (0.24% acceptance rate, only 12 non-US slots available for international candidates).	2023
Fully Funded Sister2Sister Exchange Program (0.5% acceptance, 15 were selected out 3000+ Pakistani female applicants)	2022
Undergraduate Scholarship: Orange Tree Foundation & Sindh Endowment (top 5% of batch)	2019–2023
Dean's List Honor across 7 consecutive semesters, Cum Laude Graduation	2019–2023

TEACHING

Teaching Assistant — CS218 Data Structures, NUCES Pakistan	Spring 2022
Teaching Assistant — MT205 Probability and Statistics, NUCES Pakistan	Fall 2022
Teaching Assistant — CS325 Numerical Computing, NUCES Pakistan	Spring 2023

TALKS & POSTER PRESENTATIONS

Pace: Physics-Aware Attentive Temporal Convolutional Network for Battery Health Estimation

ACM Symposium of Applied Computing — Oral Talk 2026

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

IEEE Vehicular Technology Conference (VTC) — Oral Talk 2025

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

Joint Mathematics Meeting (JMM) — Poster Presentation 2024

Toyota Research Institute, San Jose — Invited Talk 2023

University of California, Los Angeles — Oral Talk 2023

ACADEMIC SERVICE

Reviewer, *IEEE Internet of Things Journal* 2024, 2025

Reviewer, *AAAI Main Conference and NeusymBridge Workshop* 2026

Associate Chair (Full Papers), *ACM CUI Conference* 2026

VOLUNTEERING

Volunteer, Ismaili Civic Singapore — wellness programs for senior citizens Aug 2024 – Mar 2026

Chapter Lead, ACM Council on Women in Computing (ACM-W) 2022–2023

Sign Language Interpreter, ConnectHear Summer 2020

Member, Pakistan US Alumni Network May 2021 – Present

SKILLS

Applied AI Graph Machine Learning, Time Series LLMs Fine-Tuning, Edge Deployment

Programming Python, C/C++, SQL, R, Java

Deep Learning PyTorch, TensorFlow, OpenAI

Tools & APIs Google Cloud, Linux, Docker, Kubernetes, Flask, FastAPI, Streamlit, Microsoft Power BI

Typesetting L^AT_EX