Soujatya Sarkar

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EDUCATION

B.Sc. (Hons.) in Data Science and Artificial Intelligence　　　　2023-2027
INDIAN INSTITUTE OF TECHNOLOGY GUWAHATI　　　　　　　　　　CPI: N.A.
Coursework (ongoing): Basic English, Data Analysis, C Programming, Statistics, Linear Algebra, Data Science: Intro, Python Programming, Computer System Tools, AI Basics, Data Structures, Algorithm Design and Analysis, R Programming.

B.Tech. in Chemical Technology　　　　　　　　　　　　　　2019-2023
UNIVERSITY OF CALCUTTA　　　　　　　　　　　　　　　　CGPA:7.70
Coursework: Basic Computer Engineering, Basic Electrical Engineering, Basic Electronics, Engineering Mathematics, Statistics, Modeling & Simulation, Numerical Analysis, Chemical Engineering, Nanotechnology, Material Science.

Higher Secondary Education　　　　　　　　　　　　　　　2017-2019
HARIYANA VIDYA MANDIR　　　　　　　　　　　　　　　%: 76.25%
Coursework: English, Physics, Chemistry, Mathematics, Computer Science.

Secondary Education　　　　　　　　　　　　　　　　　2013-2017
ST. XAVIER'S COLLEGIATE SCHOOL　　　　　　　　　　　　%: 90.40%
Coursework: English, Science, Social Studies, Mathematics, Computer Applications.

SKILLS

Key Skills: Artificial Intelligence, Data Science, Computational Methods, Signal Processing and Analysis, NLP, Computer Vision, App-Game-Web Development.
Programming Languages: Python, R, Java, C++, C, JavaScript, HTML, CSS, PHP, SQL.
Frameworks: Flutter, OpenCV, TensorFlow, WordPress.
Simulation & Modeling: Figma, Blender, AutoCAD, Autodesk Fusion 360, MATLAB.
IDEs: Unreal Engine, MS Visual Studio, Android Studio, VSCode, PyCharm, IntelliJ.
Technical Software: Adobe Creative Cloud, FL Studio, Microsoft Office, OBS.
Operating Systems: Windows, MacOS, Linux.

EXPERIENCE

BOSE INSTITUTE | GUEST RESEARCHER　　　　　　　　Kolkata, IN | 2023
o Working under the guidance of Prof. Subhrangsu Chatterjee on "Prediction of the 3D molecular structure of a protein from the 2D image of the molecule".
o Working with Dr. Trina Sengupta to develop an ML algorithm predicting sleep efficiency from cortical arousals which are detected from raw EEG sleep data.

DATA SCIENCE LAB, AKCSIT | RESEARCHER　　　　　　　Kolkata, IN | 2022
Conducted extensive literary research and authored a survey paper on advanced spike sorting techniques which can be utilized for developing small and resource-optimized VLSI wireless BCIs, under the mentorship of Prof. Amlan Chakrabarti. The survey paper is currently submitted to CIEC 2024 and is under peer-review.

ADITYA BIRLA INSULATORS, LTD. | SUMMER TRAINEE　　　　Howrah, IN | 2022
Worked at the Rishra plant of Aditya Birla Insulators, Ltd. under the supervision of Dr. Gobinda Pahari, on building a model which can predict the approx. amount of CMC & water required to adjust the virgin Brown Glaze to production standards.
o Created samples of production glaze in the laboratory and collected the additive addition data.
o Built an ML model using Scikit-Learn and created an application based on the model using Tkinter and Python.

PROJECTS

EASY QUERY LANGUAGE [↗]
C++, PYTHON
A No-SQL lightweight database language, coded in C++, which works seamlessly with multiple tables and is equipped with quick and short commands. Further development on the aspects of scalability and syntax writing is ongoing to make the project's foundation stronger. The source code is undergoing a complete shift to Python.

GLAZE ADDITIVE PREDICTOR [↗]
PYTHON, SCIKIT-LEARN, PANDAS, TKINTER
A GUI application based on a prediction model that statistically predicts the amount of CMC and water required to adjust the parameters of Density and Fluidity of virgin Brown Glaze to the required standards as provided by the user. The application is available on my GitHub repository for both Windows(x64) & macOS(universal). This project was carried out at Aditya Birla Insulators, Ltd.

PIEZO-ELECTRIC MOTION SENSING LIGHT ALARM
SELF DEVELOPED ELECTRONIC DEVICE
Developed a PZT-based motion-sensing LED light alarm as my High School project.

PUBLICATIONS & PREPRINTS

STATISTICAL PREDICTION OF THE AMOUNT OF CMC AND WATER REQUIRED TO ADJUST THE PARAMETERS OF BROWN GLAZE [↗]
Soujatya Sarkar and Sudip Kumar Das. *Proceedings of the 108th Indian Science Congress.* (Figshare, 2023); DOI: 10.6084/m9.figshare.22822136

ADVANCED SPIKE SORTING APPROACHES IN IMPLANTABLE VLSI WIRELESS BRAIN COMPUTER INTERFACES: A SURVEY [↗]
Soujatya Sarkar. *2024 3rd International Conference on Control, Instrumentation, Energy & Communication (Submitted).* (arXiv, 2023); DOI: 10.48550/arXiv.2309.00913

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GLAZE ADDITIVE PREDICTOR [↗]
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COMPUTER SOFTWARE WORK
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NOTABLE CERTIFICATIONS

MACHINE LEARNING [↗]   Grade: 100.00%
STANFORD UNIVERSITY ONLINE   COURSERA
Coursework: Linear Regression, Logistic Regression, Regularization, Neural Networks, Machine Learning Systems Design, SVMs, K-Means Clustering, Anomaly Detection, Large Scale Machine Learning, Sample Project on Photo OCR.

NEURAL NETWORKS AND DEEP LEARNING [↗]   Grade: 99.50%
DEEPLEARNING.AI   COURSERA
Coursework: Deep Learning Foundations, Logistic Regression as a Neural Network, Vectorization, Shallow Neural Networks, Deep Neural Networks.

GOOGLE DATA ANALYTICS SPECIALIZATION [↗]   Grade: 97.40%
GOOGLE   COURSERA
Courses: Process Data from Dirty to Clean; Google Data Analytics Capstone: Complete a Case Study; Share Data Through the Art of Visualization; Prepare Data for Exploration; Foundations: Data, Data, Everywhere; Ask Questions to Make Data-Driven Decisions; Data Analysis with R Programming; Analyze Data to Answer Questions.

ACADEMIC SOCIETIES

IEEE | STUDENT MEMBER   2023-24

IEEE YOUNG PROFESSIONALS | MEMBER   2023-24

THE INDIAN SCIENCE CONGRESS ASSOCIATION | STUDENT MEMBER   2023-24

IEEE COMPUTATIONAL INTELLIGENCE SOCIETY | STUDENT MEMBER   2023-24

INDIAN SOCIETY FOR SLEEP RESEARCH | LIFE MEMBER   2023-∞∞

CONFERENCES & WORKSHOPS

108th INDIAN SCIENCE CONGRESS – NAGPUR   2023
Full Paper Presentation – *Statistical Prediction of the amount Of CMC And Water required to adjust the parameters of Brown Glaze.* [preprint available: *Figshare*]

GOOGLE EXPLORE ML: BEGINNER & INTERMEDIATE   2019

IEM - DEVELOPMENT OF AI & AUTOMATION SYSTEM   2019

POSITIONS & LAURELS

GENERAL SECRETARY   2022-2023
Calcutta University Students' Union (TMCP) – Rajabazar Campus.

FOUNDER & PRESIDENT   2019-2022
University of Calcutta Tech and Science Club (UCTSC).

CHIEF EDITOR   2019-2020
TERAWIRE – Official Science Magazine of UCTSC Tech Club.

CORE TEAM – INSTRUCTOR   2019-2022
Google Developer Students Club, Chapter - University of Calcutta.

CODECHEF JANUARY LONG CHALLENGE – WR: 22   2020
Ranked 1st in my university and 22nd in the world in the CodeChef January Long Challenge (Division C) by scoring 752/800.

REGIONAL MATHEMATICS OLYMPIAD 2017 - QUALIFIED   2017
Pre RMO 2017 West Bengal Rank – 397 out of approx. 25,000 applicants.