



SUJAY RASTOGI

Course : **M.Sc. (Hons.)**, Mathematics and **B.E. (Hons.)**, Computer Science, 2024

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CGPA : 8.30



ACADEMIC DETAILS

| COURSE | SPECIALIZATION | INSTITUTE/COLLEGE | BOARD/UNIVERSITY | SCORE | YEAR |
|-----------|----------------|--|------------------|---------|------|
| CLASS XII | SCIENCE | City Montessori School, Gomti Nagar - I, Lucknow | ISC | 96.25 % | 2019 |
| CLASS X | | St. Francis' College, Lucknow | ICSE | 94.8 % | 2017 |

SUMMER INTERNSHIP / WORK EXPERIENCE

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| Software Development Intern, Amazon ‘MyHR LiveHelp Feature Enhancements’ | May 2023 - Jul 2023 [React, TypeScript, Java] |
| • Developed the read-receipt feature in the LiveChat of MyHR , which is a tool for Amazon employees to contact HR support for their needs. | |
| • Provided support to 22 languages , deployed the feature end-to-end , and enabled the receipts for the agent portal . | |
| • Standardized the post-chat survey form across the 7 business lines and correctly tagged the form with the associated business line. | |
| • Updated a current API to send popstar flags and consumed them in the UI for feature control , allowing a new feature to be released in waves . | |
| Summer Intern, Indian Institute of Management (IIM) Lucknow ‘Stock Market predictions using ARIMA models’ | Jun 2021 - Jul 2021 [Pandas, NumPy, Seaborn, and statsmodels] |
| • Worked with Dr. Alok Dixit (Assoc. Prof, Dept. of Finance & Accounting), on time series modeling and forecasting of the NIFTY 50 TRI data. | |
| • Performed data cleaning, exploratory data analysis, and applied and compared time series models like AR, MA, ARIMA, SARIMA, and ARCH. | |
| Summer Intern, Indira Gandhi Centre for Atomic Research (IGCAR), Kalpakkam ‘Development of Computer Vision tools for Feature Recognition in Microscopic Images’ | May 2021 - Jul 2021 [Matplotlib, Scikit-Learn, Scikit-Image, and OpenCV] |
| • Developed ML pipeline for data-driven classification tasks and automated labeling and analysis of microstructural images . | |
| • Leveraged Image Processing & Computer Vision techniques for feature identification and measurement to obtain a 77% matching score . | |

PROJECTS

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| Virus Spread in Social Network Modeling - Network Modeling | Jan 2023 - Present |
| • Working with Dr. Ahad Zehmakan (of ANU) to model virus spread in a social network to find interventions to reduce the population affected. | |
| • Performed simulations and proposed & developed experiments to reduce the virus spread by using network properties. | |
| • Currently working on developing strategies based on network properties and their physical significance to devise more effective solution. | |
| Visualization of LCA data for product optimization using mixed reality - Extended reality | Sep 2022 - Jan 2023 |
| • Worked in collaboration with TU Braunschweig on a mixed reality project sponsored by Volkswagen & DAAD. | |
| • Discussed current visualization techniques, explored the use of extended reality in literature, and incorporated visual analytics in its UI. | |
| • Developed a prototype to visualize an ebike & generate plots to help in choosing ideal material for different parts for sustainable production. | |
| Graph Algorithms for dimensioned floorplans - Graphs, Python Development, Floorplanning | Jul 2022 - Present |
| • Developing GPlan, a software that accepts graph-based input to generate architectural floorplans. | |
| • Devised an algorithm to generate floorplans for one connected graphs and implemented dimensioning to rectangular and non-rectangular rooms. | |
| • Added block symmetry in floorplans for both one-connected & biconnected graphs and working on graph transformation to reduce the complexity. | |

PUBLICATIONS

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| Automated Generation of Floorplans with Non rectangular Rooms | Journal name: Graphical Models Publication date: May 1, 2023 |
| Authors: Krishnendra Shekhawat, Rohit Lohani, Chirag Dasannacharya, Sumit Bisht, Sujay Rastogi | |
| Rectangular Floorplans with Block Symmetry | Journal name: CAADRIA Conference Publication date: Mar 21, 2023 |
| Authors: Shiksha, Krishnendra Shekhawat, Sujay Rastogi , Aishwariya Kondaveeti, Jose P. Duarte | |

ACADEMIC VOLUNTEERING

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| Teaching Assistant - BITS Pilani | Jan 2023 - Dec 2023 |
| • Machine Learning: Teaching R programming with a focus on using R libraries to implement machine learning algorithms to 50+ undergraduate students. | |
| • Microprocessor Programming & Interfacing: Developed study material and taught Assembly Language programming to 40+ sophomores. | |
| • Computer Programming: Taught basic concepts of Unix and programming in C to 100+ freshmen. | |

AWARDS AND RECOGNITIONS

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| ACM IKDD Uplink Intern SIGKDD, ACM India | May 2022 |
| • Among the 10 students (out of 300+) selected for a deep learning project with ACM India. | |
| Department Topper Department of Mathematics, BITS Pilani | Dec 2021 |
| • Department rank 1 in Department of Mathematics after the completion of sophomore year. | |

Letter of Motivation

With the current rate of environmental degradation, several environmentalists and ecological activists feel that it would be impossible for humans to inhabit Earth by the 22nd century. The increasing annual temperature rise, melting of polar ice caps, rise in the mean sea level, and the deterioration in the quality of breathing air paint a very poor picture of the condition of Earth. Multiple space agencies, especially the Elon Musk-owned SpaceX have started focusing on finding other planets suitable for human inhabitation. However, it is still more of a dream than a reality. Thus, it is the need of the hour to understand, check and reduce the environmental impact that human activities have on Earth to protect it for future generations.

India is on its way to becoming an industrial economy and the availability of cheap labor has attracted several large corporations to set up their offices in India. Thus it is imperative for us to keep a check on the environmental impact of the industries. Some of the sustainable production problems are waste disposal, utilization of power (electric and fossil), and carbon footprint. However, the even bigger problem is the attitude of the people towards the environment. They are negligent/ unaffected by the harm that their actions have.

The advancement in technology has been a breakthrough for our time. If used effectively, it can help in resolving our problems. The first task should be to educate the people about the current condition of the earth and how their negligence has a cascading impact on the environment. Having made the people aware, digital means can also be used to convey to them the small changes they can make in their lifestyle to prevent further damage. The industries can use the new devices available to treat the chemicals/ air/ water coming out of the. Proper use of air scrubbers can clean the air, the same can be done with water and chemicals. However, industrialists can flout these safety measures for profits. This is where the role of government comes in. They can pass laws to keep the industries in check. Further, there should be a fine in case of pollution.

The present youth will one day become the leader of the world. Thus, it is important to educate them about the severity of the current environmental damage. They should understand that the environmental impact is a key factor when taking decisions for a corporate. Thus by making changes at the grass-root level, slowly but surely we will be to limit the environmental damage and work on making Earth a greener, cleaner, and safer planet to live.