

Sujay Rastogi

DEPARTMENT OF MATHEMATICS, DEPARTMENT OF COMPUTER SCIENCE & INFORMATION SYSTEMS · BITS PILANI

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Education

Birla Institute of Technology & Science (BITS), Pilani

INTEGRATED MSC MATHEMATICS & BE COMPUTER SCIENCE

Pilani, Rajasthan

August 2019 - Ongoing

- **CGPA:** 8.34
- **Minor:** Data Science
- **Dean Merit Scholarship:** Awarded for 2 consecutive semesters and 1 summer term for being in the top 2% students of the batch.
- **Relevant Coursework:** Machine Learning, Foundations of Data Science, Computational Learning Theory, Data Structures & Algorithms, Object-Oriented Programming, Computer Programming, Graphs & Networks, Probability & Statistics, Optimization, Multivariate Calculus, Linear Algebra, Algebra-I (Group & Ring Theory), Differential Equations

Publications

Automated Generation of Floorplans with Non-rectangular Rooms (Paper)

May, 2023

GRAPHICAL MODELS

- **Paper Status:** Paper has been published.
- **Authors:** Krishnendra Shekhawat, Rohit Lohani, Chirag Dasannacharya, Sumit Bisht, **Sujay Rastogi**

Rectangular Floorplans with Block Symmetry (Paper)

March, 2023

COMPUTER-AIDED ARCHITECTURAL DESIGN RESEARCH IN ASIA (CAADRIA CONFERENCE)

- **Paper Status:** Paper has been presented at the conference.
- **Authors:** Shiksha, Krishnendra Shekhawat, **Sujay Rastogi**, Aishwariya Kondaveeti, Jose P. Duarte

Experience

Amazon

Hyderabad, Telangana

SOFTWARE DEVELOPMENT INTERN - [TECHNOLOGY: REACT, TYPESCRIPT, JAVA]

May 2023 - Ongoing

'Feature Integration in myHR LiveChat'

- 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 18 languages** and **deployed** the feature to be **used by the entire Amazon workforce**.
- Currently, working on **standardizing the post-chat customer satisfaction survey** and **transferring it across business lines**.

Indian Institute of Management (IIM)

Lucknow, Uttar Pradesh

SUMMER RESEARCH INTERN - [TECHNOLOGY: PYTHON (NUMPY, PANDAS, SEABORN, STATSMODEL, SCIKIT-LEARN)]

June 2021 - August 2021

'Stock Market predictions using ARIMA models'

- Worked under **Dr. Alok Dixit**, Department of Finance & Accounting on **time series modeling** and **forecasting** on the **NIFTY 50 TRI** data.
- Performed **data cleaning, exploratory data analysis and compared time series models** like the **AR, MA, ARIMA, SARIMA** and **ARCH**.

Indira Gandhi Center for Atomic Research (IGCAR)

Kalpakkam, Tamil Nadu

SUMMER RESEARCH INTERN - [TECHNOLOGY: PYTHON (NUMPY, MATPLOTLIB, SCIKIT-LEARN, SCIKIT-IMAGE, OPENCV)]

May 2021 - July 2021

'Development of Computer Vision tools for Feature Recognition in Digital Microscopic Images'

- Worked under **Mr. B. Aashranth**, Scientific Officer 'D', under the Metallurgy & Materials group.
- Developed ML pipeline for data-driven classification tasks and **automated labeling and analysis of microstructural images**.
- Leveraged Computer Vision tools for **feature identification** and measurement to obtain a **77% matching score**.

Academic/Research Projects

Epidemic Modeling

ALGORITHM LAB, AUSTRALIAN NATIONAL UNIVERSITY

January 2023 - Ongoing

- Working with **Dr. Ahad Zehmakan** 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 solutions.

Graph Algorithms for dimensioned floorplans (Video)

COURSE: DESIGN ORIENTED PROJECT

May 2022 - Ongoing

- Working with **Dr. Krishnendra Shekhawat** to develop **Rule-based GPlan**, a data driven approach to GPlan.
- Implemented **dimensionality constraints** on **floorplans with corridors** and to **non-rectangular rooms**.
- Currently working on **graph transformation** to **reduce time complexity** for finding floorplan satisfying user given **symmetry constraints**.

Visualization of LCA data for product optimization using mixed reality (Certificate)

INDO-GERMAN CENTRE FOR SUSTAINABLE MANUFACTURING

September 2022 - January 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 e-bike & generate plots** to help in **choosing ideal material** for different parts for sustainable production.

Floorplans with minimum bends (Video)

COURSE: STUDY ORIENTED PROJECT

August 2021 - April 2022

- Worked with **Dr. Krishnendra Shekhawat** to develop **GPlan**, a **software** that accepts **graph-based input** to generate architectural floorplans.
- Devised an **algorithm** to generate floorplans for **one connected graphs** and contributed to the generation of dimensioned floorplans.
- Implemented **block based symmetry** in floorplans for both one-connected & biconnected graphs.
- Helped in writing code using **NetworkX** and **Tkinter libraries of Python**.

Webpage Ranking Algorithm

COURSE: APPLIED STOCHASTIC PROCESSES

March 2021 - May 2021

- Worked under **Dr. Anirudh Singh Rana**, to explore applications of **Markov Chains** in webpage ranking.
- Designed a **ranking algorithm** based on the PageRank Algorithm by **incorporating keywords of the metadata in sequencing links**.

Skills

Languages	Python, Java, C
Python Libraries	NumPy, Pandas, Matplotlib, Seaborn, Scikit-Learn, Scikit-Image, NetworkX, Tkinter, Statsmodels
Development	HTML, CSS, Javascript

Honors & Awards

ACM IKDD Uplink Intern

2022

SIGKDD, ACM INDIA

- Among 10 selected students (out of 300+ applicants) for a **deep learning project** with the Knowledge Discovery & Data Mining SIG of ACM India.

Department Topper

2021

DEPARTMENT OF MATHEMATICS, BITS PILANI

- Department **rank 01** in **Department of Mathematics** at the end of sophomore year.

ISC Merit Award

2019

NATIONAL BOTANICAL RESEARCH INSTITUTE

- Received merit scholarship from **CSIR-NBRI** for exemplary performance in **ISC exams**

Teaching

- **Teaching Assistant-** Microprocessors and Interfacing (CS F241) January 2023 - Ongoing
 - Developed study material & teaching **Assembly Language programming** to **40+ students**.
- **Teaching Assistant-** Computer Programming (CS F111) March 2023 - Ongoing
 - Teaching basic **concepts of Unix** and **programming in C** to **50+ students**.

Position of Responsibilities

Students' Academic Cell (SAC)

CORE COMMITTEE MEMBER

August 2020 - Ongoing

- Hosted '**Summer Internship Prep Talk**' to help **over 400 students** prepare for the summer internship season of 2021.
- Contributed to the **logistics** of '**Core Placement Talk 2021**' which **helped 200 students** to gain insights about placements in core sector.

Microsoft Learn Student Ambassador (MLSA), BITS Pilani Chapter

CORE COMMITTEE MEMBER

August 2020 - Ongoing

- Helped in **ideation and organisation** of **Cyber Houdini**, a capture the flag event in **APOGEE** (the annual college Techfest) 2021
- Arranged a workshop from Microsoft professionals on **Azure** & participated in **Indian Workshop on Applied Deep Learning (IWADL)**

Volunteering Activities

Peer Mentorship Programme (PMP)

STUDENT MENTOR

August 2020 - August 2021

- **Mentored** a group of students from the **Fresher's batch** of **2020** to get acquainted with college and settle in online mode of education.
- **Solved** their **doubts** and **helped** them in **making academic decisions** like course selection & degree planning.