Jiyanshu Dhaka

Final Year Undergraduate
Major: Statistics and Data Science
Minors: Computer Science - Machine Learning , Cognitive Sciences

✉ jiyanshudhaka2003@gmail.com
🔗 Jiyanshu Dhaka | ✉ jiyanshud22@iitk.ac.in
⌂jiyanshud22 | ✆+91-9413186425

ACADEMIC QUALIFICATIONS

Year	Degree/Certificate	Institute	CPI/%
2022 - present	Bachelor's	Indian Institute of Technology Kanpur	**8.1/10**
2021	RBSE (XII)	Disha Delphi Senior Secondary School	**97.8%**
2018	CBSE (X)	Gurukul International School	**94.8%**

SCHOLASTIC ACHIEVEMENTS

- **KVPY(SB)** Scholar 2021 with **All India Rank 28** in common rank list conducted by Indian Institute of Science, Bangalore
- **KVPY(SA)** Scholar 2019 with **All India Rank 832** in common rank list conducted by Indian Institute of Science, Bangalore
- Secured **All India Rank 3846** in **Joint Entrance Exam (Advanced) 2022** among the 0.16 million shortlisted candidates
- Secured **All India Rank 4025** in **Joint Entrance Exam (Main) 2022** among more than 1 million appeared candidates
- Awarded the **Reliance Foundation UG Scholarship**, a merit-cum-means scholarship granted to 5,000 students nationwide
- Achieved **A*** in **Human Centered Computing** and **Computational Cognitive Science** for **Outstanding** performance
- Achieved **A or higher grades** in **14** mandatory or elective courses at **IIT Kanpur** for **Excellent academic performance**

PROGRAMMING EXPERIENCE

- Achieved **Rating of 1600+ (Codeforces Expert)** with **Global Rank 95** in Round 1035 | Profile : **Imvengeance3846**
- Active on Platforms: **LeetCode**: (Jiyanshu_Dhaka) | **Kaggle**: (jiyanshudhaka) | **IB**: (jiyanshu-dhaka) | **GFG**: (jiyanshudifcz)

WORK EXPERIENCE

CHAMPHUNT INC | *Machine Learning Internship* *(Sep'24–Jan'25)*

- Built **Hybrid Post Recommender** (content + collaborative filtering), boosting relevance by **28%** & engagement by **3 min**
- Built **Q-Learning friend recommender** using Q-table updates from user interactions, achieving **78%** user acceptance rate
- Integrated **location match, follower overlap**, & **noise factors** with weight tuning, boosting **personalzation** for **5k** users
- Built **Cricket Ball Detection Algorithm** using **Contour Detection + YOLOv8**, **HSV masking & temporal checks**
- Applied **Gaussian blur** & **morphological operation** to reduce noise; Used **Optical Flow** & **Kalman Filter** for smoothing
- Automated extraction of **ball–pitch contact frames; classifying deliveries** as yorker, bouncer, etc. to improve analysis

SALTMINE USA INC | *Workspace Design Automation Intern* | 🌐 *(Feb'25–Jul'25)*

- Built **Workspace Stacking algorithm** using **greedy allocation**, **proportional distribution**, & **adjacency modeling**
- Generated **85%+ valid** stack plans, with $\sim$ **90% match** to manual outputs, reducing manual workload by **($\sim$3–4 hrs/day)**
- Built grid-based zoning engine using **ILP** optimization to satisfy adjacency, periphery, diagonal, and block-pattern constraints
- Implemented **MCMC + combinatorial optimization** based sampling to optimize **objective functions** across constraints
- Developed zoning web app with **NLP-driven interface** translating custom rules into constraints and visualized grid layouts

PROJECTS

Passive Image Forgery Detection | *Prof. Nisheeth Srivastava* | ⌂ *(Dec'23–Feb'24)*

- Implemented **Error Level Analysis** with **HSV contour analysis** to expose tampered regions via pixel-level inconsistencies
- Detected **fake medical scans, X-rays, and morphed reports**, aligning with ongoing **cybersecurity forensics research**
- Classified **507 bonafide** and **210 morph** images as **original or forged**, achieving **80.1%** and **78.7%** accuracy respectively

Microsoft Boggle Solver | *Self Project* | ⌂ *(Jun'25–Jul'25)*

- Implemented a **backtracking algorithm** on an $n \times n$ matrix to generate all valid solutions for the Microsoft Boggle game
- Integrated a **Trie-based dictionary** with **40,000+** word entries for efficient word search and validation in the **Boggle grid**
- Designed reusable components in **C++ Object-Oriented style** including Trie header file and random board generator class

Cells | *Course Project MTH312* | *Prof. Dootika Vats* | k | ⌂ *(Feb'25–Mar'25)*

- Achieved the highest **ARI score of 0.87981** in class by integrating multi-omics data using a **Dual-branch Autoencoder**
- Clustered 10,000 cells into 8 distinct types via **spectral clustering**, outperforming **PCA+CCA** by 79.6% in **ARI** metrics
- Visualized cell latent space with **UMAP**, revealing separation of **cell type** and overlapping modalities across 2 omics layers

Gale-Shapley Algorithm | *Self Project* | ⌂ *(Jan'25–Mar'25)*

- Implemented the **Gale-Shapley** stable matching algorithm using **C++** to generate and analyze **1000+ random datasets**
- Conducted **probabilistic simulations** in **R** showing proposals concentrated near **1.5n log n**, matching with **nHn bound**
- Analyzed that **runtime decreases** from worst-case $O(n^2)$ to probabilistic $O(n \log n)$, applying coupon collector arguments

TECHNICAL SKILLS

C | C++ | R | Python | SQL | HTML | CSS | LaTeX| Git | GitHub | Linux | MongoDB | OpenAI | NumPy | Pandas | scikit-learn

RELEVANT COURSES
* → A, ** → A*

Data Structure & Algorithm	Introduction to Machine Learning*	AI Techniques in Data Mining*
Data Science Lab (I),(II) & (III)*	Human Centered Computing**	Computational Cognitive Science**
Matrix Algebra & Linear Estimation*	Cryptographic Techniques	Fundamentals of Computing (I) & (II)

POSITIONS OF RESPONSIBILITY
(Jul'23–Apr'24)

Academic Mentor, ICS, IITK	Web Secretary, CWC, IITK	🌐	Executive, Stamatics Club, IITK	🌐 ⌂