# Rajat Gupta

## ACADEMIC QUALIFICATIONS

| Year | Degree/Board | University/Institution | %/CGPA |
|------|--------------|------------------------|--------|
| 2021* | Post Graduate Diploma in Business Analytics | IIM Calcutta, ISI Kolkata, IIT Kharagpur | 9.54/10 |
| 2018 | Dual Degree in Civil Engineering | Indian Institute of Technology Kharagpur | 8.71/10 (**Rank-2**) |
| 2013 | Class XII, CBSE | India International School, Jaipur | 89.4% |
| 2011 | Class X, CBSE | India International School, Jaipur | 10/10 |

## AWARDS & ACHIEVEMENTS

### Institute Rank 4 – PGDBA 2019-21

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| Academic Achievements | ▪ Awarded **merit - based scholarship** for securing **highest GPA** in 1st semester of PGDBA at **ISI Kolkata** <br> ▪ Achieved **100%ile** (Score: **101.09/102**) in **CAT '17** QA and **99.32%ile** overall (**99.98%ile** QA) in **CAT '18** <br> ▪ Ranked **3rd** among **328** participants in **Mathematics Olympiad** organized at KSHITIJ '20, IIT Kharagpur <br> ▪ Secured **AIR33** in National Science Talent Search'12, **AIR132** in International Mathematics Olympiad'12 <br> ▪ Secured rank in **National Top 1%/12000** candidates in International **Astronomy** Olympiad '12 Stage 1 |
| Publication | ▪ Ranked **16th/301** participants in **NTIRE Real Image Denoising Challenge** in conjunction with **CVPR'20** <br> ▪ Ranked **17th/174** participants in **AIM Image Super Resolution Challenge** in conjunction with **ECCV'20** |
| Data Science Competitions | ▪ Ranked **14th** globally at the COVID-19 Open Task by AICures, **Massachusetts Institute of Technology** <br> ▪ Ranked **2nd/375** & **3rd/461** participants in AI/ML quiz organized by Univ.AI and Datalogy respectively <br> ▪ Ranked **4th** among **169** participants in Notitia, Data Analytics event organized by IFMR (GSB), Sri City <br> ▪ Ranked **23rd/5042** & **58th/10256** participants in NLP & CV challenge by HackerEarth & Analytics Vidhya <br> ▪ Top **4.1%/2756** participants in International Data Analysis Olympiad 2020 by **HSE University, Russia** |
| Competitive Programming | ▪ Ranked **79th/6701** participants in OHF 2020, **30 - challenge coding contest** organized by Dare2Compete <br> ▪ **Top 0.76%** among **38917** participants in July Easy '20, programming contest organized by HackerEarth |

## WORK EXPERIENCE (12 months)

| **Structural Engineer** | **Offshore Engineering Design and Energy Consultants Pvt. Ltd.** Mumbai (*June '18 – May '19*) |
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| Roles & Responsibilities | ▪ Pioneered design methodologies for Topside structures and prepared **Standard Operating Procedures** <br> ▪ Handled communication & negotiation with multiple leads in multiple projects under Aker Sol. & **L&T** <br> ▪ Part of recruitment team for interviewing **20+** candidates during campus placements at IIT Kharagpur |

## INTERNSHIPS (4 months)

| **Summer Intern** | **Department of Computer Science & Engineering, IIT Kharagpur** (*April '20 – July '20*) |
|---|---|
| Explainable Recommendation Systems (Graph ML) | ▪ Implemented **RecWalk** on MovieLens 1M & generated **explainable recommendations** using **PRINCE** <br> ▪ Web scraped movie attributes from DBPedia and obtained movie similarities using **BERT Embeddings** <br> ▪ Achieved **HITS@10** of **0.69**, **31%** higher than **ACM** baseline paper with extended information network |
| Knowledge Aware Chatbots (NLP) | ▪ Generated informed responses using **Transformer** trained on **Wizard of Wikipedia** with **173K** dialogs <br> ▪ Devised framework using **Reinforcement Learning** to adaptively update model with data in real-time |

| **Summer Intern** | **Prof. Sahadeb Sarkar, Operations Management Group, IIM Calcutta** (*June '20 – July '20*) |
|---|---|
| Fantasy Games – Skill v/s Chance | ▪ Explored methodologies including **Monte Carlo** simulation to identify degree of skill in fantasy cricket <br> ▪ Computed users' win-fraction, ROI & performed **Z-test** & **KS-test** to find skill difference between users <br> ▪ Formulated **Bayesian** approach to validate skill in game & explored clustering of users using **K-Means** |

## ACADEMIC PROJECTS

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| COVID-19 Pandemic Modelling (TS) | ▪ Forecasted number of COVID-19 cases using **ARIMA**, Logit Model & **SIR** based epidemiological model <br> ▪ Modelled trend part with spline, error with ARIMA and performed **ADCF** test to check for stationarity <br> ▪ Compared model performance with **RMSE** metric, improved it by **4.5%** against base model RMSE **190.7** |
| Credit Score Prediction (ML) | ▪ Devised classification **framework** to predict financial delinquency trained with data of **150K** borrowers <br> ▪ Developed Python class to assess set of classifiers, data models & optimize threshold from **ROC** curve <br> ▪ Obtained **0.86 AUC** on **RF** with tuned parameters & improved it against base model **0.62** AUC on **SVM** |
| Improving Building Segmentation (CV) | ▪ Proposed an **End-to-end** building segmentation framework trained on **605** images visible on Bing Maps <br> ▪ Extracted building coordinates using **Google's DeepLabv3** & enhanced images with **Super-Resolution** <br> ▪ Achieved IoU of **0.68;** improving benchmark by **5 percentage points** compared to **CVPR** baseline paper |
| Improving Dialog Systems (NLP) | ▪ Designed **End-to-end** conversational dialog system with generative hierarchical neural network model <br> ▪ Accounted for temporal nature of utterances in model trained on **DailyDialog** dataset with **13K** dialogs <br> ▪ Attained **BLEU-4** score of **0.03;** improving it by roughly **4** times as compared to **IJCNLP** baseline paper |
| Image Enhancement Techniques (CV) | ▪ Explored **denoising**, **dehazing** and **deraining** techniques to estimate clean images from occluded ones <br> ▪ Designed **autoencoder** & attained model performance comparable to **CycleGANs & Pix2Pix** approach <br> ▪ Obtained **PSNR** of **15.96** & **SSIM** of **0.6**; scores comparable to **Top 16** in NTIRE '19 Dehazing Challenge |
| COVID-19 Symptom Checker (AI) | ▪ Designed chatbot prototype based on **CDC's** COVID screening protocol in **multiple Indian languages** <br> ▪ Tracked **user's location** using **GeoPy** & disseminated information of testing centres & beds in real-time |

## POSITIONS OF RESPONSIBILITY, EXTRA - CURRICULAR ACTIVITIES

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| Governor, Dance Society, IIT KGP | ▪ Led a team of **33** to participate in Rendezvous '16, IIT Delhi; Conferred **Gold** in Shuffle, Spring Fest'15 <br> ▪ Earned **Special Mention** for outstanding performances in Social and Cultural Events at IIT Kharagpur |
| Writer | ▪ Active Writer at Quora with over **3800** followers, **2.5 Million** views and above **150** questions answered |
| Sports | ▪ Represented PGDBA **(1/61)** in **Finals** of **Chess** in the Intra Freshers Tournament' 20 held at IIM Calcutta |

**TOOLS:** Python, PyTorch, Tensorflow/Keras, OpenCV | **COURSES:** Deep Learning, Foundations of Machine Learning