Rakesh Bal

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Education

University of California, Los Angeles	**Los Angeles, CA**
Master of Science (M.S.) in Computer Science	2021–2023 (Expected)
Indian Institute of Technology (IIT) Kharagpur	**Kharagpur, India**
Bachelor of Technology (Hons.) in Computer Science and Engineering	2016–2020

Work Experience and Internships

Amazon Web Services (AWS) — **San Francisco, US**
Applied Scientist Intern — Jun'22 - Sep'22
- Analysed the performance of Protein Language Models on Drug Target Interaction (DTI) prediction problem
- Obtained 20% & 12% performance improvement over two datasets compared to the baseline DTI models
- Devised ways to add Physics-based equations to existing DTI models and submitted a paper for peer review

Goldman Sachs — **Bangalore, India**
Analyst, Engineering Division — Aug'20 - Sep'21
- Integrated two internal bug and issue tracking softwares as part of a full-stack development project
- Implemented UI features using Angular and Redux, and made the codebase more robust by writing tests
- Coordinated with end-users for the entire SDLC; deployed the project to production, used by over *8000* users

Accenture Technology Labs — **Bangalore, India**
Research Intern — May'19 - Aug'19
- Worked on stock price prediction using news articles and knowledge graphs (KGs) to provide domain information
- Used GCNs with events for real-world stock scenarios leading to performance improvement of 5% from baseline

University of California, Los Angeles — **Los Angeles, US**
Graduate Teaching Assistant — Sep'21 - Present
- Led discussion sections for *100* undergrad students in the Chem 20A: Chemical Structures Course for 3 quarters

Publications

Analysing the Extent of Misinformation in Cancer Related Tweets [Link]
- Authored by **Rakesh Bal***, Sayan Sinha*, Swastika Dutta, Rishabh Joshi, Sayan Ghosh, Ritam Dutt
- *14th International AAAI Conference on Web and Social Media (**ICWSM** 2020) - (Atlanta, USA)*

Two-Sided Fairness in Non-Personalised Recommendations [Link]
- Authored by Aadi Swadiptio Mondal*, **Rakesh Bal***, Sayan Sinha*, Gourab K. Patro
- *35th AAAI Conference on AI (**AAAI** 2021) Student Abstract and Poster Program*   * - equal contribution

Relevant Projects

Text Graph Convolutional Networks (GCNs) [Link]
- Investigated TextGCN and reproduced the model's results on 5 different text classification datasets
- Designed new graph construction algorithms to improve the time cost of graph construction in TextGCN model

CLIP for Visual Question Answering (VQA) [Link]
- Worked on leveraging OpenAI CLIP in existing VQA models like MCAN in both zero-shot and finetune settings
- Used Language Driven Semantic Segmentation for answering number-based questions in the VQA 2.0 dataset

Skills

Languages: Python, C, C++, Java, JavaScript, TypeScript, Matlab, Lisp
Libraries: PyTorch, Keras, TensorFlow, Lightning, Pandas, Angular, React, Node.js, Spring, MongoDB, OpenCV

Achievements

- Awarded B-Certificate in drill and weapon training in National Cadet Corps (NCC) — Aug'18
- Secured All India Rank 191 in KVPY SX Stream organised by IISc, Bangalore — Feb'16
- Secured All India Rank 265 (amongst 200,000 candidates) in IIT-JEE Advanced 2016 — Jun'16
- Secured 5th position in District Level Chess Championship held at SCS College, Puri — Jan'10