Rakesh Bal

Education

2016–2020 **Indian Institute of Technology Kharagpur**,
BTech. (Hons.) in *Computer Science and Engineering*, GPA: 9.04/10.

Work Experience

May 2019 - Aug 2019 **Accenture Technology Labs**, Bangalore.
Research Intern
- Worked on stock price prediction using news articles and incorporated knowledge graph as domain knowledge
- Used Graph Convolutional Networks along with events for better representation of the real-world stock scenario
- Implemented novel joint training of Regression Models and Graph Networks for better predictions

Feb 2017 - May 2019 **Autonomous Underwater Vehicle**, IIT Kharagpur.
Undergraduate Researcher
- Implemented real-time underwater buoy detection using Single Shot MultiBox Detector on the top of MobileNet
- Working on making the inference of models lightweight and suitable for use in bot using Movidius NCS
- Used Actionlib and Smach Packages of ROS to create Mission Planner Stack on Kraken 3.0

Projects

NMT
- Analysed performance of various attention based NMT models such as Bahdanau and Transformer
- The translation results were fed into a search engine and top results were analysed with the original queries

Recommender Fairness
- Worked on determining fairness in recommender systems using election voting methods
- Used traditional recommender system algorithms like Matrix factorization on SmartMedia Adressa Dataset
- Applied the theory of electoral systems like SNTV, k-Borda and Monroe to measure fairness

Fair GANs
- Worked on overcoming dataset bias towards gender by balancing the images in the dataset
- Used GANs (Cycle-GAN) for unsupervised domain translation in order to achieve dataset balancing

Skills

Languages Python, C, C++, Octave, Java, Verilog, Bash, CSS
Libraries PyTorch, Keras, TensorFlow, Pandas, Scikit-Learn, OpenCV, ROS

Publications

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

Nov 2019 **Modelling Bahdanau Attention using Election methods aided by Q-Learning [Link]**.
- Authored by Sanskar Agarwal*, **Rakesh Bal***, Sayan Sinha*, Arijit Nag
- Currently under review at *ACL 2020 Student Research Workshop* - (Seattle, USA) * - equal contribution

Relevant Courses

Computer Sc. Algorithms, Software Engineering, Switching Circuits and Logic Design, Computer Organisation & Architecture, Compilers, Operating Systems, Computer Networks, Theory of Computation

Maths and AI Discrete Mathematics, Probability & Statistics, Linear Algebra, Machine Learning, Image Processing, Reinforcement Learning, Deep Learning, AI & Ethics, Natural Language Processing

Awards and Achievements

Aug 2018 Awarded B-Certificate in drill and weapon training in National Cadet Corps (NCC)
Feb 2016 Secured All India Rank 191 in KVPY SX Stream organised by IISc, Bangalore
June 2016 Secured All India Rank 265 (amongst 200,000 candidates) in IIT-JEE Advanced 2016
May 2015 Recipient of National Talent Search Examination (NTSE) Scholarship

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