Ayush Agarwal

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Education

- **Delhi Technological University** Delhi, India
  Bachelor of Technology in Information Technology (CGPA:8.8/10.0) (WES iGPA:3.92/4.0) *Aug. 2017 -- July. 2021*

Publications

- **A. Agarwal**, A. Chivukula, M. Bhuyan, T. Jan, B. Narayan, M. Prasad, "Identification and Classification of Cyberbullying Posts: A Recurrent Neural Network Approach using Under-sampling and Class Weighting", published at **ICONIP 2020:** Designed a novel method for identifying cyberbullying posts on social media websites using attention based architecture along with combating data skewness using class weighting and data sampling. [**Publication**] [**Code**]
- T. Abhishek **A. Agarwal**, A. Sharma, V. Varma, M. Gupta, "Rehoboam at the NTCIR-15 SHINRA2020-ML Task", published at **NTCIR-15:** Proposed a novel multilingual architecture for classifying Wikipedia articles written in low resource Indic languages using named entity recognition, graph neural networks and cross-lingual models.[**Publication**]
- **A. Agarwal**, P. Meel, "Stacked Bi-LSTM with Attention and Contextual BERT Embeddings for Text Credibility Analysis", under review, **Springer Journal:** Proposed a novel and robust BERT Based architecture for analysis and classification of news and social media content for credibility check.
- A. Kaur*, M. Leekha*, U. Chawla*, **A. Agarwal***, M. Saxena*, N. Madaan, K. Kannan, S. Mehta, "Multidimensional Analysis of Trust in News Articles", in **AAAI 2020** (SA Track), USA: Proposed a trust evaluation method for news articles by identifying bias arising from sentiment, topic analysis and centrality and attention towards identifiable entities.(*Joint First Authors). [**Publication**] [**PDF**] [**Code**]
- **A. Agarwal**, A. Yadav, D. K. Vishwakarma, "Multimodal Sentiment Analysis via RNN Variants", in **IEEE BCD 2019**, USA: Designed a bi-directional RNN Attention Network with fused modalities for performing Multimodal Sentiment Analysis on CMU-MOSI Dataset. [**Publication**] [**Code**]
- A. Yadav, **A. Agarwal**, D. K. Vishwakarma, "XRA-Net framework for Visual Sentiments Analysis", in **IEEE BigMM 2019**, Singapore: Designed a modified Xception Net using transfer learning and residual attention net for performing sentiment analysis on DeepSentiment Image Dataset. [**Publication**] [**Code**]

Research and Work Experience

- **University of Technology Sydney** Sydney, Australia
  Research Intern - Supervised by Dr. Mukesh Prasad *Dec 2019 -- Present*
  - Designing a robust method for detecting different forms of web toxicity including cyberbullying and hate speech by identifying contextual patterns and cost sensitive deep learning methods.
  - Conducted analysis of COVID-19 research articles by mining the CORD-19 dataset using semi-supervised learning and topic modeling.
- **Biometric Research Lab, Delhi Technological University** Delhi, India
  Undergraduate Thesis - Supervised by Ms. Priyanka Meel *March 2020 -- Present*
  - Working on an undergraduate thesis project on investigation of Transformer based models for news credibility analysis using semi-supervised learning.
- **Information Retrieval and Extraction Lab, IIIT Hyderabad** Hyderabad, India
  Research Intern - Supervised by Dr. Vasudeva Varma and Dr. Manish Gupta *May 2020 -- Present*
  - Working on improving WikiData knowledge base in low resource languages using named entity recognition, multi-lingual learning and knowledge graphs.
- **Ubicomp Lab, National University of Singapore** Singapore
  Research Intern - Supervised by Dr. Brian Y. Lim *June 2019 -- Sep 2019*
  - Designed a method for masking privacy related features in social media images using deep convolution nets and explaining the masking using heatmaps generated through gradcam technique and activation maps.
  - Visualized features using weights generated by Generalized Additive Models for enhancing graph readability.

- **IBM Research Lab** Delhi, India
  Research Intern - Supervised by Ms. Nishtha Madaan *Mar 2019 -- May 2019*
  - Worked on mining bias in articles of different news sources. Scrapped articles and used an attention based network to find words of high importance/attention for calculating bias. Proposed a sensationalism score which combined several aspects of the article such as word centrality, article sentiment and word attention.
  - Applied clustering and dimension reduction algorithms to identify abnormal representation of topics in news article. Created visualizations for showing topic representation and bias in articles. Paper published at AAAI 2020 (SA).
- **Biometric Research Lab, Delhi Technological University** Delhi, India
  Research Intern - Supervised by Dr. D. K. Vishwakarma *Aug 2018 -- Feb 2019*
  - Implemented bi-directional RNNs using attention for performing multimodal sentiment analysis on CMU-MOSI dataset. Paper published at IEEE BCD 2019.
  - Modified Xception Net using residual attention network for performing visual sentiment analysis for images. Paper published at IEEE BigMM 2019.

Extra Curricular Experience

- **Delhi Technological University** Delhi, India
  Class Coordinator *Aug 2020 -- Present*
  - Coordinating between students and professors of all major subjects in the department. Managing issues and queries of students regarding classes, assignments, projects and exams
- **International Organization of Software Developers** Delhi, India
  Co-Head Machine Learning and NLP *Jul 2018 -- Present*
  - Led ML Projects with student teams and taught Machine Learning using Python to more than 150 university students. Organized and led yearly tech fests in the university.
- **University Student Internship Program, Delhi Technological University** Delhi, India
  Department Intern *Mar 2018 -- Jun 2018*
  - Worked under the HOD of Information Technology for managing the alumni data and the department website. Coordinated between professors of the department during the NAAC university audit.

Programming Languages, Tools and Frameworks

- **Languages :** Python, C, C++, SQL, HTML, CSS, Javascript
- **Tools and Frameworks :** Keras, Tensorflow, Pytorch, NLTK, Spacy, HuggingFace, Fast.ai, OpenCV,

Standardized Test Scores

- **GRE:** Total Score: 334/340, Quantitative: 170/170, Verbal: 164/170, AWA: 4.0/6.0
- **TOEFL iBT:** Total Score: 111/120, Reading: 29/30, Listening: 28/30, Speaking: 27/30, Writing: 27/30