Anjishnu Mukherjee

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RESEARCH INTERESTS

I am interested in exploring Fairness and Interpretability for multilingual NLP applications. I am currently working on metrics for measuring bias and effective methods for debiasing.

EDUCATION

- **George Mason University** — Virginia, United States
  Doctor of Philosophy, Computer Science — *Aug. 22 – Present*

- **Indian Institute of Engineering Science and Technology (IIEST)** — Shibpur, India
  Bachelor of Technology, Computer Science — *Jul. 17 – Jun. 21*
  CGPA: 9.63/10 · Department Rank: 1 · Thesis paper (Project Website)

EXPERIENCE

- **George Mason University**
  Graduate Teaching Assistant — *Aug. 22 - Present*
  - Delivered lectures for 250+ students across 4 different lab sections.
  - Formulated problem sets on recursion and user defined functions.

- **Google Summer of Code**
  Developer · Google People + AI Research — *May. 22 - Aug. 22*
  - Researched user experiences for Tabular Feature Attribution and Salience Methods for LIT.

- **Wells Fargo**
  Program Associate · Data & Analytics — *Jul. 21 - May 22*
  - Prepared PowerBI dashboards to track Microsoft Teams adoption for 170,000+ users.
  - Created a PowerBI solution for analysing Zoom license usage for 15,000+ users.
  - Built a pipeline in python using paramiko and regex for configuration drift management.

- **EndoX**
  Machine Learning Researcher · Project Website — *Apr. 20 - Jun. 21*
  - Collaborated with researchers from University of Toronto and Massachusetts General Hospital.
  - Used ResNet variants, Vision Transformers and model compression techniques.
  - Obtained 95%+ classification accuaracy on private data, improving on previous SOTA of 80%.
  - Published 2 abstract papers, paper 1 & paper 2 in Digestive Disease Week (DDW) 2021.

- **Google Summer of Code**
  Student Developer · MLPACK — *Jun. 20 - Aug. 20*
  - Developed computer vision functionality - Pixel Shuffle, Instance Norm and Spatial Dropout.
  - Implemented Multi Label Soft Margin loss. Wrote a thorough test-suite for all loss functions.
  - Maintaining a personal repository for feature demonstrations and a blog for explanations.
  - Published in Journal of Open Source, as part of the mlpack4 release.

- **University of Bremen**
  Research Intern · DAAD WISE — *Mar. 20 - Aug. 20*
  - Formulated heuristic Time of Impact algorithm for Real-time Continuous Collision Detection.
  - Integrated the C++ implementation into the Collision Detection pipeline of the CollDet library.

- **Udacity**
  Consultant · Computer Vision ND — *May 19 - May 20*
  - Explained computer vision fundamentals 1:1 for 100+ students as 1 of 12 mentors worldwide.
  - Reviewed 250+ project submissions from students across the world for all course projects.

- **Omdena**
  Machine Learning Engineer — *Jan. 20 - Mar. 20*
  - Worked on the Creedix Challenge as part of a team of 45 engineers from 27 countries.
  - Scraped data from multiple sources and extracted relevant features for unsupervised learning methods.

Publications

- Ryan R. Curtin, et al. "mlpack 4: a fast, header-only C++ machine learning library." *Journal of Open Source Software 8.82 (2023): 5026.*
- Daniel J Low, Zhuoqiao Hong, Sechiv Jugnundan, **Anjishnu Mukherjee**, and Samir C Grover. "Automated Detection of Bowel Preparation Scoring and Adequacy With Deep Convolutional Neural Networks." *Journal of the Canadian Association of Gastroenterology, 2022.*
- Daniel J Low, Zhuoqiao Hong, **Anjishnu Mukherjee**, Sechiv Jugnundan, and Samir C Grover. "Automated Bowel Preparation Detection With Deep Convolutional Neural Networks." *Journal of the Canadian Association of Gastroenterology 5 (Suppl 1), 2022, 139.*
- Daniel J Low, Zhuoqiao Hong, Sechiv Jugnundan, **Anjishnu Mukherjee**, and Samir C Grover. "Automated detection of cecal intubation with variable bowel preparation using a deep convolutional neural network." *Journal of Gastroenterology 160, no. 6 (2021): S-376.*
- **Anjishnu Mukherjee**, Souparno Bhattacharyya, Kinjal Ray, Balraj Gupta, and Asit Kumar Das. "A Study of Public Sentiment and Influence of Politics in COVID-19 Related Tweets." *Computational Intelligence in Pattern Recognition, 2021, 655-665.*

Professional Service

Reviewer
- *AIES 2023*
  ICLR - AfricaNLP 2022, 2023

Awards and Achievements

- **Summer Graduate Research Award 2023**: Research Topic - *Evaluating Robustness of Debiasing Approaches to Adversarial Attacks*, Awarded by: *George Mason University*
- **DAAD WISE Scholarship 2020**: Received a scholarship as 1 of 130 receipients from all over India for a summer Internship at University of Bremen in Germany.
- **IAS Summer Research Fellowship Programme 2020**: Received a fellowship for a research internship at IISc Bangalore during the summer of 2020.
- **GAABESU (Merit based scholarship 2020**: Received by virtue of holding the first rank in the Computer Science department at the end of the second year of undergraduate studies.

Talks and Presentations

- **Analysing Political Sentiments in Tweets**: CIPR 2021, India   [Video]

Relevant Coursework

- **Graduate Courses**: Research in CS, Data Mining, Advanced NLP, Analysis of Algorithms
- **Undergad Courses**: Natural Language Processing, Data Mining, Machine Learning, Compilers, Operating Systems

Skills

- **Technical Skills**: Python, PyTorch, NumPy, Pandas, Scikit-Learn, Git, GitHub

Selected Projects [CODES]

- **Socially Aware Bias Measurements for Hindi Language Representations**:
  NAACL 2022 Paper reproduction