SUPRITI VIJAY

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AREAS OF INTERESTS

Natural Language Processing for Social Good, Explainable AI, Computational Social Science, Social Network Science

EDUCATION

Bachelor of Computer Science and Engineering, Manipal Academy Of Higher Education — Expected 2023
With a minor in Big Data Technology — **Cum. GPA: 9.06/10**

Relevant Coursework:

- OOPs, Computer Networks, OS, Computer Architecture, Database Management, Parallel Computing
- Compiler Design, Social Network Analysis, Cloud Computing, Design of Algorithms
- Intro to Philosophy and Culture, Indo-European Intercultural Dynamics, Culture and Literature in Society

EXPERIENCE

MITACS Globalink Research, Lakehead University — Jul 2022 – Present
Research intern under Supervisor- Dr. Amine Trabelsi — *Remote*

- Surveyed previous literature on Online Harmful behaviour(Hate Speech, Offensive, Toxic Text etc.)
- Proposed taxonomy of works for Anti-Social Behaviour

Media and Data Science Lab, Adobe Research — May 2022 – Sep 2022
Research intern under Supervisor- Dr. Chirag Agarwal, Shripad Deshmukh — *Remote*

- Surveyed and Analysed existing literature on counterfactual generation in a text, image and tabular setting
- Developed a methodology to integrate Explainability in the form of Counterfactuals with Reinforcement Learning

University of Copenhagen - Københavns Universitet, Denmark — Aug 2021 – Dec 2022
Research Intern under Supervisor - Dr Jakob Grue Simonsen, Dr. Akrati Saxena — *Remote*

- Spearheaded a team of 100+ interns and annotators
- Created a dataset of Educational websites mined through large-scale web crawling

Agency for Science, Technology and Research (A*STAR), Singapore — Jul 2021 – Dec 2021
Research Intern under Supervisor - Dr Saurabh Aggarwal — *Remote*

- Surveyed existing literature on positive and negative links in social networks

Research Society MIT (Official Research Organization of MIT, Manipal) — Jun 2020 – Aug 2022
General Secretary — *Manipal, India*

- Organization that promotes interdisciplinary research and provides a platform for undergraduate research. 40+ papers accepted to journal and conference proceedings around the world, with 70+ ongoing projects
- Co-organized Cognizance, an initiative aiming to connect students from different streams and promote research in modern areas by exposing them to experts from diverse backgrounds. (800+ registrations & attendees)
- Conducted Paper Presentations and Jam Sessions on prevalent topics in the AI domain.
- Mentored 30+ students in the Artificial Intelligence and Computer Science domain

Association for Computing Machinery - Women (ACM-W) — Jun 2020 – Present
Core Committee Member — *Manipal, India*

- Head of the Data Science Study Group which includes conducting meetings and workshops of people who want to either start their journey or explore more in the field of Data Science.
- Co-started and supervised awareness programs about the available opportunities for Women in Tech inclusive of diversity programs, open hiring challenges and upskill training. [Link]

PUBLICATIONS

1. **Vijay, S.**, & Priyanshu, A. NERDA-Con: Extending NER models for Continual Learning — Integrating Distinct Tasks and Updating Distribution Shifts. Accepted at the Updatable Machine Learning Workshop, ICML 2022 (2022).[Code][Link]
2. Priyanshu, A., Vardhan, A., Sivakumar, S., **Vijay, S.** & Chhabra, N. "Something Something Hota Hai!" An Explainable Approach towards Sentiment Analysis on Indian Code-Mixed Data. Accepted at Workshop on Noisy User-generated Text (W-NUT), EMNLP 2021 (2021).[Link]

3. Gupta, G., **Vijay, S.**, Ramesh, K. Detecting Gender Bias using Explainability. Accepted at Workshop on Widening Natural Language Processing (WiNLP) workshop, EMNLP 2021 (2021).[Video]
4. Priyanshu, A., Vardhan, A., Sivakumar, S., **Vijay, S.** & Chhabra, N. ExCode-Mixed: Explainable Approaches towards Sentiment Analysis on Code-Mixed Data using BERT models.[Link]

ONGOING RESEARCH WORK & PROJECTS

#maskUp: Selective Attribute Encryption for Online Sensitive Vocalization

- A safe methodology for information communication in a secure fashion to the relevant authorities
- Aims to discourage potential bullying of the victims and ensure security by conserving their privacy through natural language processing supplemented with selective encryption for sensitive attribute masking.

Bias Mitigation with Activation-Weighted Neuron Regularization

- Computes fisher information matrix of model parameters between epochs
- Incorporate a Regularizer for controlling performance mitigation tradeoffs.
- Balance a trade-off between normal downstream task loss and the regularization loss that avoids overfitting to features that are predictive of binary gender.
- Evaluated against Gender-based Evaluation Test(GBET) metric, Equity Evaluation Corpus (EEC)

TabNAS [Code]

- Neural architecture search for no code users.
- Generalized for both classification as well as regression tasks.
- Benchmarked the model for 3 datasets - Adult Income dataset, Car dataset, Housing Prices dataset

NERDA-Con [Code] [Library]

- Python library encompassing a pipeline for training Named Entity Recognition (NER) with Large Language Models bases by incorporating the concept of Elastic Weight Consolidation (EWC) into the NER fine-tuning NERDA pipeline.
- Evaluated over two settings: distribution shifts and distinct tasks. The experimental results on the former show an increase of 2.67% and an increase of 13.66% in F1 Score as compared to the naive approaches.

SKILLS

Programming Languages/Tools	Python, Java, C, SQL, LaTeX, C#, Shell Scripting(Git & Bash)
Libraries/Frameworks	PyTorch, Tensorflow, Hugging Face, Matplotlib, Flutter, Unity
Languages	English, Hindi, Bahasa Indonesia, Malay

ADDITIONAL COURSEWORK

- Deep Learning Specialization (Coursera)
- CS224n: Natural Language Processing with Deep Learning (Stanford)
- Machine Learning by Stanford (Coursera)

EXTRA-CURRICULAR ACTIVITIES

- **Adobe India Women-in-Technology Scholar 2022** [Link] Nov 2021
  Includes a fully funded trip to Grace Hopper Celebration India, mentorship and Tuition fees Coverage
- **Mitacs Globalink Research Internship Recipient** Dec 2021
  Received accompanying scholarship of 15,000 CAD
- **FELASA: Feminine Law Safety Awareness Initiative, Co-Founder** Aug 2022
  - Initiative to create awareness about women's safety laws in India
  - Conceived a solution for a website to connect lawyers and underprivileged women with low financial resources
  - Created an ML Recommendation System which consolidates similar newspaper articles on victims of gender-based crimes from various newspapers to provide additional information to help lawyers build their cases and contact victims.
- **Second Runner's Up**, #ShowYourSkill (Coursera) June 2022
- **Awarded** a Research Seed Grant for UG & PG Students Feb 2022
- **Microsoft Technology Associate Certification** - Intro. in Programming using Python [Link] Aug 2020
- **GirlScript Foundation Volunteer** to help people with fewer benefits learn coding Dec 2021