BHANU PRATAP SINGH

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EDUCATION

MS-PhD Computer Science

University of Massachusetts Amherst

Expected June 2022 Amherst, MA

- **Cumulative GPA: 3.84 / 4.0**
- **Courses taken:** Machine Learning, Advanced Natural Language Processing and Probabilistic Graphical Models.
- Advised by Prof. Hong Yu.

BTech - Electrical Engineering

Malaviya National Institute of Technology Jaipur

Aug 2010 – May 2014 Jaipur, India

- **Cumulative GPA: 9.01 / 10.0**
- Member of Research Group zlne.

WORK EXPERIENCE

Research Assistant

BioNLP Lab UMass Amherst

Sep 2017 – Present Amherst, MA, USA

- Leading a project on answering Naranjo Questionnaire to detect causal relationships between adverse drug reactions and anticoagulants.
- Studying the effect of TBI (Traumatic Brain Injuries), PTSD (Post-traumatic Stress Disorder) on suicidal behavior in veterans.
- Developing methodologies to detect suicide attempt and ideation events in the electronic health records of patients.
- Published at KDD, JAMIA, MLHC, COLING, JMIR, ML4H (NeurIPS).

Applied Scientist Intern

Amazon - Alexa DeepNLU Team

May 2021 – Aug 2021 NY, US

- Worked on developing unsupervised topic modeling techniques using contextual embeddings for extractive summarization of Amazon product reviews and discovering new actionable intents from user utterances for Alexa AI.

Applied Scientist Intern

Amazon - Alexa DeepNLU Team

May 2020 – Aug 2020 NY, US (*Remote- Amherst, MA*)

- Developed robust finetuning methods to improve the zero-shot and few-shot performance of the existing multilingual models by incorporating continual learning methods such as EWC.
- Paper (Under Review).

Applied Scientist Intern

MIT-IBM Watson AI Lab

Jun 2019 – Aug 2019 Cambridge, MA, US

- Developed a multi-task clinical question answering model that incorporates the entity information of the context along with predicting the semantic form of the question.
- Work published at BioNLP, ACL'20.

SELECTED PUBLICATIONS

1. **Membership Inference Attack Susceptibility of Clinical Language Models**, Arxiv Preprint 2021
   A Jagannatha, **Bhanu Pratap Singh Rawat**, Hong Yu
2. **Relation Classification for Bleeding Events From Electronic Health Records Using Deep Learning Systems: An Empirical Study**, JMIR 2021
   Avijit Mitra, **Bhanu Pratap Singh Rawat**, David D McManus and Hong Yu
3. **Continual Domain-Tuning for Pretrained Language Models**, Arxiv Preprint 2021
   Bhanu Pratap Singh Rawat, A Jagannatha, S Rongali, Hong Yu
4. **Inferring ADR causality by predicting the Naranjo Score from Clinical Notes**, AMIA 2020
   Bhanu Pratap Singh Rawat, A Jagannatha, Feifan Liu, Hong Yu
5. **Entity-enriched neural models for clinical question answering**, BioNLP, ACL 2020
   Bhanu Pratap Singh Rawat, *Wei-Hung Weng, So Yeon Min, Preethi Raghavan, Peter Szolovits*
6. **Conversational Machine Comprehension: a Literature Review**, COLING 2020
   Somil Gupta, ***Bhanu Pratap Singh Rawat***, *Hong Yu*
7. **Multi-resolution Networks For Flexible Irregular Time Series Modeling (Multi-FIT)**, Arxiv 2020
   Bhanu Pratap Singh Rawat, Iman Deznabi ... Madalina Fiterau
8. **Naranjo Question Answering using End-to-End Multi-task Learning Model**, KDD 2019
   Bhanu Pratap Singh Rawat, *Fei Li and Hong Yu*
9. **Apps to measure motor skills of vocational workers**, UbiComp 2016
   Bhanu Pratap Singh Rawat, Varun Aggarwal

SKILLS

- **Languages:** Python (NumPy, SciPy, pandas, scikit-learn), Java, UI (HTML, CSS, Typescript).
- **Frameworks/Technologies:** PyTorch, Tensorflow, Django, Spring, and AWS (DDB, S3, SNS, Lambda).
- **Areas of Interest:** Natural Language Processing, Machine Learning, Conversational Machine Comprehension.
- **Conference Reviewer:** NeurIPS, ICML, ICLR, EMNLP, ML4H (PC), AISTATS (sub-reviewer), AMIA.

OTHER PROJECTS

EvoML: Evolutionary sampling to improve bagged ensembles.

- Developed an evolutionary algorithm based framework to generate different model ensembles for existing benchmark problems.
- Work published at DEML, ICML'16 [paper link].