

PRAKHAR GUPTA

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RESEARCH INTERESTS

My research interests lie in natural language processing and machine learning in general, and specifically in problems related to dialogue systems. My PhD research is focused on designing systems capable of making neural dialogue systems reliable. Towards this aim, I have worked on two themes: 1) Evaluation - Creation of metrics and models for text and response generation which are robust against spurious patterns and biases, and 2) Controlled generation - Providing intuitive controls to a developer to tune generative models so that they can handle unseen scenarios and avoid generation of unsafe outputs. Prior to the start of my PhD, I worked at Adobe research labs for 3 years.

EDUCATION AND EXPERIENCE

PHD AND MS, LANGUAGE TECHNOLOGIES INSTITUTE Graduate Research Assistant Carnegie Mellon University, PA, USA GPA: 4.03	August 2018 - Present
M.TECH. AND B.TECH. (DUAL DEGREE) IN CS Indian Institute of Technology, Roorkee, India GPA: 8.95/10, Distinction awarded	July 2010 - June 2015

PROFESSIONAL EXPERIENCE

RESEARCH INTERN Amazon, Sunnyvale CA	May 2022 - August 2022
RESEARCH INTERN Salesforce Research	June 2021 - August 2021
RESEARCH ASSOCIATE 2 Adobe Research, India	July 2015 - August 2018
RESEARCH INTERN Adobe Research, India	July 2014 - August 2014

PUBLICATIONS

- **Prakhar Gupta**, Cathy Jiao, Yi-Ting Yeh, Shikib Mehri, Maxine Eskenazi, Jeffrey P. Bigham, *Improving Zero and Few-shot Generalization in Dialogue through Instruction Tuning*, Arxiv
- **Prakhar Gupta**, Harsh Jhamtani, Jeffrey P. Bigham, *Target-Guided Dialogue Response Generation Using Commonsense and Data Augmentation*, NAACL 2022 (Findings)
- **Prakhar Gupta**, Chien-Sheng Wu, Wenhao Liu, Caiming Xiong, *DialFact: A Benchmark for Fact-Checking in Dialogue*, ACL 2022
- **Prakhar Gupta**, Yulia Tsvetkov, Jeffrey P. Bigham, *Synthesizing Adversarial Negative Responses for Robust Response Ranking and Evaluation*, ACL 2021 Findings
- **Prakhar Gupta**, Jeffrey P. Bigham, Yulia Tsvetkov, and Amy Pavel. "Controlling Dialogue Generation with Semantic Exemplars.", NAACL 2021

- **Prakhar Gupta**, Vinayshekhar Bannihatti Kumar, Mukul Bhutani, and Alan W Black. *Writerforcing: Generating more interesting story endings*. In Proceedings of the Second Workshop on Storytelling. Association for Computational Linguistics, 2019.
- **Prakhar Gupta**, Shikib Mehri, Tiancheng Zhao, Amy Pavel, Maxine Eskenazi and Jeffrey Bigham, *Investigating Evaluation of Open-Domain Dialogue Systems With Human Generated Multiple References*, SIGDIAL 2019
- **Prakhar Gupta**, Gaurush Hiranandani, Harvineet Singh, Branislav Kveton, Zheng Wen, Iftikhar Ahamath Burhanuddin *Cascade Linear Submodular Bandits: Accounting for Position Bias and Diversity in Online Learning to Rank*, in Proceedings of the 35th Annual Conference on Uncertainty in Artificial Intelligence (UAI 2019)
- **Prakhar Gupta**, Shubh Gupta, Ajaykrishnan Jayagopal, Sourav Pal, Ritwik Sinha, *Saliency Prediction for Mobile User Interfaces*, In 2018 IEEE Winter Conference on Applications of Computer Vision (WACV 2018)
- Kokil Jaidka, Kaushik Ramachandran, **Prakhar Gupta**, and Sajal Rustagi. *SocialStories: Segmenting Stories within Trending Twitter Topics*, In Proceedings of the 3rd IKDD Conference on Data Science, 2016
- **Prakhar Gupta**, Sandeep Kumar, Kokil Jaidka. *Summarizing Customer Reviews through Aspects and Contexts*, in International Conference on Intelligent Text Processing and Computational Linguistics, (CI-Ling 2015)

TECHNICAL SKILLS

- Python (including scikit-learn, Pandas, numpy, etc.), Java, C++, node.js, Javascript, React
- Experience with frameworks- Pytorch, Tensorflow, Keras, Hadoop, MapReduce, etc.
- Data mining, cleaning, and imputing, statistical data modeling, quick prototype development

TEACHING AND RESPONSIBILITIES

TEACHING ASSISTANT - Computational Ethics for NLP course under Prof. Emma Strubell and Prof. Alan Black. Responsibilities include mentoring student projects, holding office hours, and grading assignments.

TEACHING ASSISTANT - Multimodal machine learning (MMML) course under Prof. Louis-Philippe Morency. Responsibilities include mentoring student projects, holding office hours, and grading assignments.

TEACHING ASSISTANT - Data Structures course. Facilitated hour-long interactive tutorials.

INTERNSHIP MENTOR - Mentored students at Adobe Research over their summers research internships.

COORDINATOR - Mobile Application Development group at Indian Institute of Technology Roorkee, India.

RELEVANT COURSES

Topics in Deep Learning
 Algorithms for NLP
 Reinforcement Learning and Control
 Multimodal Machine Learning

Machine Learning
 Neural Networks for NLP
 Design and Analysis of Algorithms
 Object Oriented System Design