Kabir **Ahuja**

Research Fellow, Microsoft Research

🌐 kabirahuja2431.github.io @ kabirahuja2431@gmail.com ⌨ github.com/kabirahuja2431 🎓 Google Scholar

Education

Present **Sept 2023**	**University of Washington** PhD, Computer Science and Engineering	**Seattle, US**
May 2019 **Aug 2015**	**Birla Institute of Technology and Science (BITS) Pilani** B.E. (Hons.), Chemical Engineering CGPA: 9.45/10 (Distinction) Department Rank: 1 / 70 (approx.) Thesis Title: Learning To Optimize Molecular Geometries Using Reinforcement Learning	**Pilani, India**

Experience

June 2023 **Aug 2021**	**Microsoft Research** *Research Fellow* [🌐] *| Advisors: Dr. Sunayana Sitaram , Dr. Monojit Choudhury, Dr. Navin Goyal* Working on building linguistically fair Multilingual Models covering different aspects around their performance, calibration, evaluation, interpretation and data collection.	**Bangalore, India**
Aug 2021 **July 2020**	**Udaan.com** *Data Scientist	Mentor: Dr. Mohit Kumar* Worked on implementing and deploying Recommendation Systems to solve numerous use cases across various verticals of the company.	**Bangalore, India**
July 2020 **Jan 2020**	**Microsoft Research** *Research Intern	Advisor: Dr. Navin Goyal* Worked on analyzing and contrasting the capabilities of Recurrent Neural Networks and Transformers in recognizing Formal Languages.	**Bangalore, India**
Dec 2019 **June 2019**	**Indian Institute of Science	MALL Lab** [🌐] *Research Assistant	Advisor: Dr. Partha Talukdar* Worked on controlled text generation for generating paraphrases of sentences while following a specified syntactic structure provided in the form of an exemplar sentence.	**Bangalore, India**
Dec 2018 **Aug 2018**	**Massachusetts Institute of Technology	Green Research Group** [🌐] *Visting Student Researcher	Advisors: Prof. William H. Green, Prof. Yi-Pei Li* Worked on devising Reinforcement Learning based methods for Molecular Geometry Optimization for efficiently finding the local minima of non-convex energy surfaces.	**Cambridge, MA, USA**

Publications

S=In Submission, C=Conference, W=Workshop, J=Journal

[S.1] **Learning Syntax Without Planting Trees: Understanding When and Why Transformers Generalize Hierarchically** [🔗] [code]
Kabir Ahuja, Vidhisha Balachandran, Madhur Panwar, Tianxing He, Noah A. Smith, Navin Goyal, Yulia Tsvetkov
[Under Review]

[C.8] **In-Context Learning through the Bayesian Prism** [🔗] [code]
Kabir Ahuja*, Madhur Panwar*, Navin Goyal
The Twelfth International Conference on Learning Representations, Vienna **[ICLR' 24]**

[C.7] **MEGA: Multilingual Evaluation of Generative AI** [🔗] [code]
Kabir Ahuja, et al.
The 2023 Conference on Empirical Methods in Natural Language Processing, Singapore **[EMNLP' 23]**

[C.6] **On Calibration of Massively Multilingual Language Models** [🔗][code]
Kabir Ahuja, Sunayana Sitaram, Sandipan Dandapat, Monojit Choudhury
The 2022 Conference on Empirical Methods in Natural Language Processing, Abu Dhabi **[EMNLP'22]**

[C.5] **Global Readiness of Language Technology for Healthcare: What would it Take to Combat the Next Pandemic?** [🔗]
Ishani Mondal*, Kabir Ahuja*, Mohit Jain, Jacki O'Neill, Kalika Bali, Monojit Choudhury
The 29th International Conference on Computational Linguistics, Gyeongju, Republic of Korea **[COLING'22]**

[C.4] **On the Economics of Multilingual Few-shot Learning: Modeling the Cost-Performance Trade-offs of Machine Translated and Manual Data** [✎][code]
Kabir Ahuja, Monojit Choudhury, Sandipan Dandapat
2022 Annual Conference of the North American Chapter of the Association for Computational Linguistics, Seattle **[NAACL'22]**

[C.3] **Multi Task Learning For Zero Shot Performance Prediction of Multilingual Models** [✎]
Kabir Ahuja*, Shanu Kumar*, Sandipan Dandapat, Monojit Choudhury
60th Annual Meeting of the Association for Computational Linguistics, Dublin, Ireland **[ACL'22]**

[C.2] **On the Practical Ability of Recurrent Neural Networks to Recognize Hierarchical Languages** [✎][code]
Satwik Bhattamishra, Kabir Ahuja, Navin Goyal
28th International Conference on Computational Linguistics **[Best Short Paper Award]** **[COLING'20]**

[C.1] **On the Ability and Limitations of Transformers to Recognize Formal Languages** [✎][code]
Satwik Bhattamishra, Kabir Ahuja, Navin Goyal
2020 Conference on Empirical Methods in Natural Language Processing **[EMNLP'20]**

[J.2] **Learning to Optimize Molecular Geometries Using Reinforcement Learning** [✎]
Kabir Ahuja, William H. Green, Yi-Pei Li
Journal of Chemical Theory and Computation [Impact Factor: 6.006] **[JCTC]**

[J.1] **Syntax-Guided Controlled Generation of Paraphrases** [✎][code]
Ashutosh Kumar, Kabir Ahuja, Raghuram Vadapalli, Partha Talukdar
Transactions of the Association for Computational Linguistics **[TACL]**

[W.2] **The SUMEval 2022 Shared Task on Performance Prediction of Multilingual Pre-trained Language Models** [✎][code]
Kabir Ahuja, Antonios Anastasopoulos, Barun Patra, Graham Neubig, Monojit Choudhury, Sandipan Dandapat, Sunayana Sitaram, Vishrav Chaudhary
First Workshop on Scaling Up Multilingual Evaluation, AACL, Online **[SumEval@AACL'22]**

[W.1] **Beyond Static models and test sets: Benchmarking the potential of pre-trained models across tasks and languages** [✎]
Kabir Ahuja, Sandipan Dandapat, Sunayana Sitaram, Monojit Choudhury
NLP Power! The First Workshop on Efficient Benchmarking in NLP, ACL, Dublin **[NLPPower@ACL'22]**

Honours and Awards

Best Short Paper Award in COLING, 2020 [🌐]   For our paper: On the Practical Ability of Recurrent Neural Networks to Recognize Hierarchical Languages

BITS Merit Cum Need Scholarship, 2015-2019   Recipient of university's scholarship waiving off 80% of the tuition fee, awarded to the students based on excellent academic performance

Winner of Turing's Large Scale Models for Inclusion Hackathon Challenge, 2022 [🌐]   Implemented Inclusivity Toolkit to diagnose the biases of language models across various dimensions by bringing together numerous bias detection methods in the literature.

Microsoft Global Hackathon Award Winner, 2021 [🌐]   Implemented a healthcare chat-bot to assess patients blood test reports and answer queries based on that.

Academic Service

Workshop Co-Organizer	SumEval Workshop at AACL'22
Peer Reviewer	CoLM 2024, ARR October'22, AAAI'23, EMNLP'22, NAACL'22, ACL'22

Teaching and Volunteering Roles

Natural Language Processing, Plaksha University   *Teaching Assistant*   Jan'22 - Apr'22
> Designed Assignments covering different topics in NLP from Bag Of Word Models to Massively Multilingual Language Models, and mentored students for their course projects.

Neural Networks and Fuzzy Logic, BITS Pilani   *Head Teaching Assistant*   Jan'19 - May'19
> Designed programming assignments for the course encompassing topics like K-nearest neighbours, Logistic Regression and Deep Autoencoders (hosted as a Kaggle competition), and conducted workshops on Python programming, Neural Networks in practice and Deep Learning frameworks.

National Service Scheme, BITS Pilani   *School Volunteer and Class Head*   Aug'15 - May'17
> Taught students from low-income backgrounds high-school level Physics, Chemistry, and Mathematics.