Kaushal Kumar Maurya

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Research Statement: The grand avid goal of my research is to enable seamless multilingual human-machine interaction. Towards this trajectory, I am particularly interested in transferring supervision from high-resource to low-resource languages for the purpose of cross-lingual transfer and generation. With this overarching objective, I work toward improving multilingual transfer learning models for text generation in low-resource languages with limited supervision. Specifically, my Ph.D. focuses on anchoring three narrative properties, which are (1) language structure, (2) context, and (3) transferability between diverse typological languages. Through this research, I hope to make significant strides toward realizing my ultimate goal of achieving flawless language generation for a wide range of end-user applications.

Research Interests

Natural Language Generation, Cross-lingual Transfer, Multilinguality, Question Answering, Conversational AI

Education

2018-Present	**Indian Institute of Technology Hyderabad, Ph.D. in Computer Science and Engineering** [Ph.D. Thesis Proposal] Low-Resource Language Generation with Limited Supervision
2015-2017	**SCIS, University of Hyderabad, Master in Artificial Intelligence** [Master Thesis] The Study of Machine Translation Evaluation
2010-2014	**KNMIET, UPTU, Bachelor in Computer Science and Engineering**

Publications

Conferences

> **Kaushal Kumar Maurya** and Maunendra Sankar Desarkar "Meta-XNLG: A Meta-Learning Approach Based on Language Clustering for Zero-Shot Cross-Lingual Transfer and Generation" Findings of **ACL 2022**. [paper] [*Long*]

> Kamal Shrestha, Aditi Sanjay Bagora, **Kaushal Kumar Maurya** and Maunendra Sankar Desarkar. "Hostility Detection in Online Hindi-English code-mixed Conversations", **WebSci 2022**[paper][long]

> **Kaushal Kumar Maurya,** Maunendra Sankar Desarkar, Yoshinobu Kano, and Kumari Deepshikha "ZmBART: An Unsupervised Cross-lingual Transfer Framework for Language Generation" Findings of **ACL-IJCNLP 2021**. [paper] [*Long*]

> **Kaushal Kumar Maurya** and Maunendra Sankar Desarkar. "Learning to Distract: A Hierarchical Multi-Decoder Network for Automated Generation of Long Distractors for Multiple-Choice Questions for Reading Comprehension." in **CIKM 2020**. [paper] [*Long*]

> **Kaushal Kumar Maurya**, Renjith P. Ravindran, Ch Ram Anirudh, and Kavi Narayana Murthy, "Machine Translation Evaluation: Manual Versus Automatic—A Comparative Study." **DECT, Springer, Singapore, 2020**. [paper] [*Long*]

Journal

> Sreekanth Madisetty, **Kaushal Kumar Maurya**, Akiko Aizawa, and Maunendra Sankar Desarkar, "A Neural Approach for Detecting Inline Mathematical Expressions from Scientific Documents" **Expert Systems 2020**. [paper]

Workshop

> Arkadipta De, Venkatesh E, **Kaushal Kumar Maurya**, and Maunendra Sankar Desarkar, "Coarse and Fine-Grained Hostility Detection in Hindi Posts using Fine Tuned Multilingual Embeddings." **CONSTRAINT workshop of AAAI 2021** [paper]. Shared task **best paper honorable mention** [link]

Others

> There are three submissions under review at TACL, ACL 2023, and ECML-PKDD journal track.

EXPERIENCE, INTERNSHIP, & COLLABORATION

Experience	**Data Science Analyst, Ntwist, CIE, IIITH, Hyderabad, India, July 2017 - March 2018** > Optimization and automation of Gas-plant production by leveraging Deep Reinforcement Learning. Correlation study of attributes in higher dimension.
Internships	**Nvidia AI Research Center, India, May 2020 - Jan 2021** **Towards Cross-lingual Transfer and Generation for Indian Languages** > Proposed an unsupervised cross-lingual generation framework to transfer supervision from High Web-Resource Language to multiple Low Web-Resource Languages. **Microsoft India (R&D), June 2021 - July 2021** **Personalized Auto-suggest Text generation for Bing Search Engine** > Augmentation of trie candidate suggestions in NLG modeling for personalized auto-suggestion for BING Search Engine **Microsoft India (R&D), Aug 2022 - Dec 2022** **Machine Translation for Extremely Low Resource Languages/Dialects** > Building MT system for extremely low-resource languages (LRLs) and dialects by exploiting lexical similarity with closely related high-resource languages (HRLs) > While modeling, the LRLs are viewed as a noisy variant of related HRLs
Collaboration	**Microsoft India (R&D), Academic Grant, July 2021 - Jun 2023** **Research Theme: Zero-shot Multi-lingual Personalized Auto-suggestion** > Improving the quality of auto-suggestions for BING Search Engine > Overcoming problematic/toxic auto-suggestions for BING Search Engine > Generating auto-suggestions for low-resource or unseen languages
Startup Advisor	**Technical Advisor at Lending Katalyst [AI-NLP Startup in Legal Domain], Feb 2022- Present** > Provide AI/NLP-oriented solutions for real-world use cases in the legal domain [website] >The problems are interdisciplinary in nature involving NLP, multilingual, legal domain and linguistic

TALKS & RESEARCH SERVICES

Talks	**Guest Talk at ACM IIT Hyderabad Student Chapter, Nov 2020** > Learning to Distract: Generation of incorrect options from Reading Comprehension MCQ **Guest Talk at Faculty Development Program on Data Science, Dec 2020** > Introduction to RNN - Data Processing and Text Classification **Guest Talk at ASIC, NLP Reading, and Discussion Groups, May 2021** > ZmBART: An Unsupervised Cross-lingual Transfer Framework for Language Generation **Guest Talk at SVECW college, Bhimavaram, AP, Dec 2021** > Introduction to Deep Learning for Natural Language Processing [**100+** participants] **Guest Task at SCIS, University of Hyderabad, April 2022** > Introduction to Deep-Learning through lenses of Natural Language Processing
Research Services	**> Student Volunteer** of ACL [2020, 21, 22], EMNLP [2020, 21, 22(lead)], ICML [2020, 21], ICLR [2020, 21], NeurIPS [2020, 22], NAACL [2021, 22], CIKM 2021 and ACML 2022 (lead) **> Reviewer** of EMNLP [2021, 22], ACL 2022, ICLR 2021, AAAI 2021, SIGTYP 2021 and MLR 2021

ACADEMIC HONORS & AWARDS

> Received a grant of INR one Lakh for attending the conference by IIT Hyderabad in **Exceptional Research Scholar** category
> **Microsoft and ACL Travel Grant:** Received travel grants to present our Meta-XNLG work in ACL 2022 in Dublin, Ireland
> Our **ZmBART** and **Meta-XNLG** papers are recognized as the **premier papers** from India by **IKDD-ACM India**. [Link]
> Received **Student Travel Grant**, CODS-COMAD 2022 and 2023
> Received fully-funded summer school offers from **Oxford University ML Summer School 2021** and **2022**
> **ACM SIGIR Travel Grant 2020** and **ACM India-IARCS Grant 2020**: Received to present our CIKM 2020 work
> **Suzuki Foundation Fellowship 2020 & 2021:** Fully funded visit to Shizuoka University, Japan, for a short research stay

> **BBC & IITG Hackathon:** Received a fully paid trip for a Hackathon in Google office Gurugram, India by BBC India and IITG
> The **University of Tokyo and IITH workshop 2018:** Secured **2nd place** in the workshop (shared task) at IIT Hyderabad
> 2014, 2015, and 2016 GATE qualified with **95+** percentile
> In high school, secured **2nd palace** in Ballia district, Utter Pradesh, India
> Winning caption of National Cadet Corps (NCC) in 8th grade.

ACADEMIC ACTIVITIES, TEACHING ASSISTANTSHIP & MENTORSHIP

> Attended ACL [2020, 21, 22], EMNLP [2020,21], NAACL [2021, 22], ICLR [2020, 21], ICML 21, CIKM 2021 and conferences
> Hybrid infrastructure (Airmeet) head for the ACML conference 2022
> Took **lectures/ hands-on sessions** in the NLP/IR Course at IITH in 2020, 2021 and 2022.
> Attended **CoDS-COMAD 2021**, **2022** and **2023** virtually and **CoDS-COMAD 2020** conference in Hyderabad, India (In-person)
> Participated in **Google India Hackathon** at the Hyderabad office in Oct-2018
> Organizer of a one-day workshop on **'Sara Translator and Recent Trends in NLP'** (29th Oct'16) in SCIS, UOH
> **TA at IITH:** Information Retrieval (Fall'21, 25+ students), NLP (Spring'21, 110+ students), IR(Fall'20, 60+ students), NLP (Spring''20, 45+ students), IR (Fall'19, 30+ students) and Algorithm (Spring'19, 120+ students)
> **TA at UoH:** NLP (Fall'16, 20+ students) and Optimization Technique (Spring'17, 55+ students)
> **Project Mentor at IITH:** IR (Fall'21, mentored 7 groups), IR (Fall'20, mentored 8 groups), NLP (Summar'20, mentored 4 groups), and NLP (Winter'19, mentored 2 Groups)