Krishna **Garg**

PH.D. CANDIDATE · COMPUTER SCIENCE · UNIVERSITY OF ILLINOIS, CHICAGO

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Education

University of Illinois, Chicago *Chicago, IL*
PH.D. IN COMPUTER SCIENCE *Fall 2018 - Summer 2025 (Expected)*

University of Illinois, Chicago *Chicago, IL*
M.S. IN COMPUTER SCIENCE *May 2024*

Birla Institute of Technology and Science *Pilani, India*
B.E. (HONS) IN COMPUTER SCIENCE *Aug 2012 - May 2016*

Research Summary & Interests

My research primarily focuses on advancing the downstream applications of Keyphrase Generation and Stance Detection. I am currently investigating innovative methods to integrate graph structures, such as **knowledge graphs** and **citation networks** encoded through **Graph Neural Networks (GNNs)**, into Large Language Models (LLMs) to enhance performance in various **NLP tasks**. Additionally, I am deeply interested in exploring the **explainability**, **robustness**, and **calibration** of deep learning models to improve their reliability and interpretability.

Publications

- Krishna Garg, and Cornelia Caragea. Target-Aware Transformer for Stance Detection. 2024. In Findings of the Association for Computational Linguistics: EMNLP 2024, Miami, Florida.

- Krishna Garg*, Yingjie Li*, [1], and Cornelia Caragea. 2023. A New Direction in Stance Detection: Target-Stance Extraction in the Wild. In Proceedings of the 61st Annual Meeting of the Association for Computational Linguistics, Toronto, Canada.

- Krishna Garg, Jishnu Ray Chowdhury, and Cornelia Caragea. 2023. Data Augmentation for Low-Resource Keyphrase Generation. In Findings of the Proceedings of the 61st Annual Meeting of the Association for Computational Linguistics, Toronto, Canada.

- Krishna Garg, Jishnu Ray Chowdhury, and Cornelia Caragea. 2022. Keyphrase Generation Beyond the Boundaries of Title and Abstract. In Findings of the Association for Computational Linguistics: EMNLP 2022, pages 5809–5821, Abu Dhabi, United Arab Emirates. Association for Computational Linguistics.

Work Experience

Adobe Research *Bengaluru, India*
PHD RESEARCH INTERN *May 2024 - Aug 2024*
- Topic: Intent-based Summarization with Graph Prompt Learning (GNN+LLM+NLP space)
- Proposed Introduction and Related-Works Generation tasks for scientific papers, with the novel Latent Diffusion Models-based architecture
- Patent under submission

Samsung Research Institute *Noida, India*
ANDROIDOS DEVELOPER | AUDIOFRAMEWORK ENGINEER *July 2016 - May 2018*
- *Bringup* of new Samsung smartphone models
- Contributions to Samsung proprietary software at Framework and Hardware Abstraction layers of Android Architecture
- Contributions in CarMode feature implementation for Samsung smartphones
- Development of new debugging tool in JAVA combining the debugging tool Elfa and the code browsing engine OpenGrok
- *Advanced* level certification in coding skills by Samsung Korea HQ

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[1]* denotes equal contribution

Central Public Works Department   *Mussoorie, India*
Software Intern | Team Lead   *May 2014 - July 2014*
- Development of Billing and Accounting Software in JAVA that replaced accounting on excel sheets
- Development of android application CivilCalculator to enable civil engineers to calculate raw materials on construction sites
- Professional Recognition and Certificate of Excellence from executive engineer Mr. Hitesh Kejriwal

Research Experience

Graduate Research Assistant | Prof. Cornelia Caragea   *UIC*
- Keyphrase Generation, Stance Detection, Explainability, Robustness, Semi-Supervised Learning   *May 21 - PRESENT*
- Papers accepted at EMNLP 2024, ACL 2023, EMNLP 2022
- Also explored Text Generation, Summarization, Text-Style Transfer ⌂, Neural Machine Translation ⌂

Graduate Research Assistant | Prof. Sathya Ravi   *UIC*
- Few-Shot Learning ⎙   *Jan 2020 - Dec 2020*
- Meta-Learning with Fairness Constraints ⎙
- optim-meta: Benchmarking meta-learning algorithms ⌂ ⎙

Bachelor Thesis | Prof. Virendra S. Shekhawat   *BITS Pilani*
- Title: Multi-path Routing Algorithm for Intra-domain Routing in Network Simulator-3   *Aug 2015 - Dec 2015*
- Open source code contributions to IPv4RoutingProtocol in NS-3

Teaching Experience

Fall '24	**HEAD Teaching Assistant**, CS 341: Programming Language Design and Implementation	*UIC*
Spring '24	**Graduate Teaching Assistant**, CS 341: Programming Language Design and Implementation	*UIC*
Fall '23	**Graduate Teaching Assistant**, CS 341: Programming Language Design and Implementation	*UIC*
Spring '23	**Graduate Teaching Assistant**, CS 111: Programming Design I	*UIC*
Fall '22	**Graduate Teaching Assistant**, CS 251: Data Structures	*UIC*
Sum '22	**Graduate Teaching Assistant**, CS 480: Database Systems	*UIC*
Spring '21	**Graduate Teaching Assistant**, CS 362: Computer Design	*UIC*
Spring '20	**Graduate Teaching Assistant**, CS 341: Programming Language Design and Implementation	*UIC*
Fall '19	**Graduate Teaching Assistant**, CS 476: Programming Language Design	*UIC*
Fall '19	**Graduate Teaching Assistant**, CS 111: Program Design I, Legal and Public Policy Themes Section	*UIC*
Fall '18	**Graduate Teaching Assistant**, CS 341: Programming Language Design and Implementation	*UIC*

Relevant Coursework

CS 412: Intro to Machine Learning ⌂	*UIC*
CS 559: Neural Networks ⌂	*UIC*
CS 594: Language and Vision	*UIC*
CS 415: Computer Vision I	*UIC*
ECE 594: Convex Optimization ⌂	*UIC*
CS 594: Learning and Optimization in Vision	*UIC*
CS 401: Computer Algorithms I	*UIC*
MATH 320: Linear Algebra	*UIC*
Pytorch for Deep learning and Computer Vision	*Udemy*
Deep Learning Specialization	*Coursera*
IBM Data Science Specialization	*Coursera*

Other Projects

Disaster-Related Tweet Classification ⌂ ⎙

- BERT-based models for classification of Tweets to facilitate disaster management

Hand Gesture Recognition ⌂ ⎙

- Using OpenCV2 library and Deep Learning based methods

Visual Dialog: A Survey 📄

- Survey paper on recent advances in Visual Dialog task

Travello 🔘 📄

- Extracting Addresses from Unstructured Text (e.g. restaurant blogs) using Deep Learning Models like LSTM & BERT

Named Entity Recognition 🔘

- PyTorch-based project to train a classifier to recognize entities like person, geographical entity, event, location, etc.

Skills

Programming	Python
DevOps	AWS, Bash scripting, Kubernetes
Machine Learning	Pytorch, Tensorflow, LLM
Version Control	Git, Perforce
Operating System	MacOS, Ubuntu, Windows
Languages	English, Hindi

Achievements

2018	**Recipient of the GSC Travel Award ($500)** UIC
2018	**Recipient of the Peter and Deborah Wexler Graduate Scholarship ($5000)** UIC
2012-2016	**Recipient of Merit Cum Need Scholarship (25% Fee Waiver)** BITS Pilani
2012	**Ranked 6364/400k+, 5962/1.2m+, 13/135k+ in national entrance exams IIT-JEE, AIEEE, BITSAT** India

Invited Talks

2023	**Keyphrase Generation: Redefining Data Science with NLP Applications | CS 418: Intro to Data Science** UIC
2022	**DPI Research Scholars Workshop: Graduate School Prep and Planning** UIC

Services

	Reviewer: ACL 2023, EMNLP 2023, NAACL 2024	
	Volunteer: ACL 2023, EMNLP 2022	
2023	**Program Committee Member, EMNLP Industry Track**	
2023-2024	**Executive Committee Member, Senate**	*UIC*
2023-2024	**Member, Committee on Budget, Planning, and Priorities**	*UIC*
2022-2023	**Representative of CS Dept in Graduate Student Council**	*UIC*