

# VARUN IYER

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## EDUCATION

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**University of Illinois at Chicago** Aug 2022 – Present  
*Doctor of Philosophy in Computer Science*

**Johns Hopkins University** Aug 2020 – May 2022  
*Master of Science in Engineering - Computer Science*

**University of Massachusetts Amherst** Aug 2017 – May 2020  
*Bachelor of Science in Computer Science*  
*Honors College Scholar with Great Distinction*

## SKILLS

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**Programming Languages** Python, Java, C++, C, JavaScript  
**Libraries & Frameworks** PyTorch, DeepSpeed, FAISS, SciPy, L<sup>A</sup>T<sub>E</sub>X

## AWARDS

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**Area Chair Award** July 2023  
*Association for Computational Linguistics*

- ▷ Awarded for second-author paper (ParaAMR) in semantics

## EXPERIENCE

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**University of Illinois at Chicago** Aug 2022 – Present  
*Research Assistant*

- ▷ Working with **Professor Cornelia Caragea** on science-focused natural language processing
- ▷ Developing approaches to deeply understand scientific facts and documents

**Amazon** May 2021 – Dec 2021  
*Applied Scientist Intern*

- ▷ Worked with **Dr. Anoop Kumar** on unsupervised paraphrase-based data augmentation
- ▷ Leveraged Abstract Meaning Representations (AMRs) to generate syntactically diverse paraphrases
- ▷ Achieved SOTA performance on unsupervised paraphrase generation task on multiple datasets

**Johns Hopkins University** May 2020 – Dec 2021  
*Research Assistant*

- ▷ Worked with **Professor Benjamin van Durme** on semantically grounded image classification
- ▷ Improved ResNet architecture for few-shot learning with geometric hierarchical embeddings
- ▷ Extended neural entity typing pipeline to new datasets in a distributed training setting

**University of Massachusetts Amherst** Aug 2018 – Dec 2020  
*Undergraduate Research Assistant*

- ▷ Worked with **Professor Andrew McCallum** on fine-grained entity typing using PyTorch
- ▷ Developed a stacked BiLSTM with embedding-based loss functions and hierarchical type constraints
- ▷ Record-linked datasets including Amazon-GoogleProducts using a compound LSTM + CNN model

**University of Massachusetts Amherst** Aug 2018 – Dec 2020  
*Undergraduate Course Assistant*

- ▷ Graded theory-intensive problem sets and exams in Artificial Intelligence and Algorithms

- ▷ Helped students in Computer Systems complete programming assignments written in C and assembly

**University of Southern California**

May 2019 – Aug 2019

*Visiting Undergraduate Researcher*

- ▷ Worked with **Professor Xiang Ren** on reinforcement learning-based knowledge graph (KG) reasoning
- ▷ Formulated contextual text-structure embedding to augment inference paths with non-KG entities
- ▷ Trained a PCNN with attention to perform distantly supervised relation extraction on inference paths

**Information Sciences Institute**

May 2018 – Aug 2018

*Undergraduate Research Intern*

- ▷ Worked with **Professor Craig Knoblock** to build and link entities in a KG of space-related objects
- ▷ Implemented level-based access control for data across multiple Elasticsearch indices
- ▷ Extracted information on 1000s of satellites and incorporated data into Elastic workflow

## PUBLICATIONS

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\* denotes equal contribution

- [1] Kuan-Hao Huang, **Varun Iyer**, I-Hung Hsu, Anoop Kumar, Kai-Wei Chang, and Aram Galstyan. ParaAMR: A Large-Scale Syntactically Diverse Paraphrase Dataset by AMR Back-Translation. In *Proceedings of the 61st Annual Meeting of the Association for Computational Linguistics (ACL)*, 2023
- [2] Kuan-Hao Huang\*, **Varun Iyer\***, Anoop Kumar, Sriram Venkatapathy, Kai-Wei Chang, and Aram Galstyan. Unsupervised syntactically controlled paraphrase generation with abstract meaning representations. In *Findings of the Association for Computational Linguistics: EMNLP 2022 (EMNLP Findings)*, 2022.