




Saujas Vaduguru

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Education

2017– **B.Tech. in Computer Science and M.S. (by Research) in Computational Linguistics**
International Institute of Information Technology, Hyderabad GPA: 9.49/10

Research Experience

2019– **Undergraduate Researcher**, Language Technologies Research Center, IIIT, Hyderabad
ADVISORS: Monojit Choudhury, Dipti Misra Sharma

May–Aug 2021 **Research Intern**, Chandar Research Lab, MILA
ADVISORS: Sarath Chandar, Prasanna Parthasarathi

Publications

Papers

- 2021 ***Stress Rules from Surface Forms: Experiments with Program Synthesis***
Saujas Vaduguru, Partho Sarthi, Monojit Choudhury, and Dipti Sharma
Submitted to *International Conference on Natural Language Processing (ICON)*
- 2021 ***Sample-efficient linguistic generalizations through program synthesis: Experiments with phonology problems***
Saujas Vaduguru, Aalok Sathe, Monojit Choudhury, and Dipti Sharma
In *Proceedings of the 18th SIGMORPHON Workshop on Computational Research in Phonetics, Phonology, and Morphology* [\[paper\]](#) [\[data\]](#)

Posters and talks

- 2021 ***Efficient Pragmatic Program Synthesis with Informative Specifications***
Saujas Vaduguru, Yewen Pu, Kevin Ellis
In *NeurIPS 2021 Workshop on Meaning in Context: Pragmatic Communication in Humans and Machines (oral presentation)* [\[code\]](#)

Honours and Awards

- 2021 MITACS Globalink Research Internship
- 2020–2021 Dean's Merit List Award for Academic Performance (top 30% of cohort)
- 2019–2020 Dean's List Award for Academic Performance (top 10% of cohort)
- 2018–2019 Dean's Merit List Award for Academic Performance (top 20% of cohort)
- 2017–2018 Dean's List Award for Academic Performance (top 10% of cohort)
- 2015 Honourable Mention, International Linguistics Olympiad

Research Projects

2021–

Semantics of imperatives in neural language models

MENTORS: Prasanna Parthasarathi, Xingdi Yuan, Marc-Alexandre Côté, Sarath Chandar

- Using dynamic semantics theories of imperative statements to probe for meaning representations in neural language models

2021–

Program synthesis with pragmatic communication

MENTORS: Yewen Pu, Kevin Ellis

- Developed pragmatic program synthesizer based on the Rational Speech Acts framework
- Used a mean-field approximation to factor pragmatic inference problem

2021

Slot-incremental continual learning for dialogue

MENTORS: Prasanna Parthasarathi, Sarath Chandar, Chinnadhurai Sankar

- Set up continual learning problems in dialogue state tracking where new slots to be tracked for the same dialogue domain are presented over time
- Finetuned Transformer-based models in a continual manner
- Experimented with continual learning methods such as replay and Task-based Adaptive Gradients

2019–2021

Program synthesis for phonology problems

MENTORS: Monojit Choudhury, Dipti Misra Sharma

- Developed program synthesis methods to learn rules to solve phonology problems from Linguistics Olympiads
- Adapted program synthesis methods for learning string transformations
- Experimented with a set of problems spanning phenomena including morphophonology, transliteration, and multilinguality

2019–2021

Program synthesis for phonological stress placement

MENTORS: Monojit Choudhury, Dipti Misra Sharma

- Developed program synthesis methods to learn rules for phonological stress placement from a small number of examples
- Designed various domain-specific languages to compare impact of specifying linguistic knowledge explicitly

Service

Pāṇini Linguistics Olympiad

- Co-chair of Problem Committee and Jury, and member of the Organizing Committee for the Indian national Linguistics Olympiad program from 2018–2021
- Team leader and coach for Indian team at the International Linguistics Olympiad in 2018, 2019, and 2021
- Lecturer at Joint Asian-Pacific Linguistics Training, 2021

Selected Course Projects

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|-----------------|---|
| Monsoon 2020 | Wikipedia Search Engine , <i>Information Retrieval and Extraction</i> FACULTY: Vasudeva Varma |
| Spring 2020 | Incorporating Dependency Syntax Into Transformer-based Neural Machine Translation , <i>Natural Language Processing Applications</i> FACULTY: Manish Shrivastava |
| Spring 2020 | Interpreting neural NLP models with language processing in the brain , <i>Introduction to Neural and Cognitive Modelling</i> FACULTY: Bapi Raju S. |
| Monsoon 2019 | Discourse-based Sentence Representations for Hindi , <i>Natural Language Processing</i> FACULTY: Manish Shrivastava |