

Nikita Moghe

Natural Language Processing, Dialogue Systems

✉ nikita.moghe@ed.ac.uk • 🌐 nikitamoghe.github.io

Education

University of Edinburgh

Ph.D. in Natural Language Processing

Advisors: Alexandra Birch and Mark Steedman

September 2019 -

Indian Institute of Technology Madras

M.S. (by Research), Computer Science and Engineering

Advisors: Balaraman Ravindran and Mitesh M. Khapra

Thesis: Incorporating External Knowledge in Domain Specific Conversation Systems

2016 - 2019

C.G.P.A: 8.8/10

University of Mumbai

B.E., Computer Engineering

Sardar Patel Institute of Technology

2012 - 2016

C.G.P.A: 9.53/10

Publications

◦ Cross-lingual Intermediate Finetuning improves Dialogue State Tracking [\[pdf\]](#) [\[poster\]](#)

Nikita Moghe, Mark Steedman, Alexandra Birch

To appear in proceedings of 2021 Conference on Empirical Methods in Natural Language Processing, EMNLP 2021.

◦ The University of Edinburgh-Uppsala University's Submission to the WMT 2020 Chat Translation Task [\[pdf\]](#) [\[video\]](#)

Nikita Moghe, Christian Hardmeier, Rachel Bawden

In Proceedings of the Fifth Conference on Machine Translation (WMT 2020), EMNLP 2020.

◦ On Incorporating Structural Information to improve Dialogue Response Generation [\[pdf\]](#) [\[video\]](#)

Nikita Moghe, Priyesh Vijayan, Balaraman Ravindran, Mitesh M. Khapra

In Proceedings of the 2nd Workshop on Natural Language Processing for Conversational AI, ACL 2020.

Extended abstract presented at EurNLP'19.

◦ Towards Exploiting Background Knowledge for Building Conversation Systems [\[pdf\]](#) [\[video\]](#)

Nikita Moghe, Siddhartha Arora, Suman Banerjee, Mitesh M. Khapra

In proceedings of 2018 Conference on Empirical Methods in Natural Language Processing, EMNLP 2018.

◦ A Dataset for Building Code-Mixed Goal Oriented Conversation Systems [\[pdf\]](#)

Suman Banerjee, Nikita Moghe, Siddhartha Arora, Mitesh M. Khapra

In proceedings of COLING 2018, International Committee on Computational Linguistics.

Professional Experience

PolyAI

June 2021 - September 2021

Machine Learning Intern

Collaborators: Ben Levin, Ivan Vulić

◦ Improved utterance representation by using conversational paraphrase detection as an intermediate task.

◦ Worked on synthetic data generation for few-shot intent detection.

◦ Conducted exploratory work on non-parametric few-shot multi-label intent detection.

Robert Bosch Centre for Data Science and AI, IIT Madras

May 2018 - June 2019

Project Associate (Deep Learning for NLP)

Presented ongoing/published work in Web Science Symposium, three RBC-DSAI poster sessions.

Microsoft Research India

June 2017

Participant, Workshop on Artificial Social Intelligence

Team: Gurneet Singh, Sanchit Agrawal, Preksha Nema, Mitesh M. Khapra

◦ Developed a minimalist conversation strategy to keep the user engaged for seven turns using insights from crowdsourced chats.

◦ Improved domain-specific conversations using information from knowledge graphs and case-based response generation.

Key Projects

Intermediate Fine-tuning for Cross-Lingual Dialogue State Tracking

November 2020 - May 2021

Collaborators: Mark Steedman, Alexandra Birch

◦ Transfer learning through multilingual language models for dialogue tasks can be enhanced by intermediate fine-tuning.

◦ Proposed cross-lingual and context-dependent intermediate objectives for dialogue tasks.

◦ Achieved around 20% absolute improvement on cross-lingual state tracking benchmarks for four different languages.

Incorporating External Knowledge in Domain Specific Conversation Systems

2017-2019

Collaborators: Siddhartha Arora, Suman Banerjee, Priyesh Vijayan, Balaraman Ravindran, Mitesh M. Khapra

- Introduced a paradigm shift from treating conversation as a sequence modelling problem to using relevant external information for meaningful and coherent responses.
- Developed a framework to combine semantic information from word embeddings, sequential word order information from LSTMs, and structural information using Graph Convolutional Networks.
- Empirically showed that explicit addition of structural information improves dialogue response generation.

Secondary Projects

Intermediate Knowledge Representation (SQL) in Conversation Systems

May 2020 - October 2020

Collaborators: Liane Guillou, Alexandra Birch, Mark Steedman

- Existing text-to-SQL neural architectures fail to identify implicit and explicit contextual references in the conversation history leading to erroneous SQL generation.
- Experimented with improving co-reference resolution within the input statements explicitly by building task-specific co-reference resolution systems.

Lemmatization for Corpus of Historical Mapudungun

Fall 2019

Team: Rimvydas Rubavicius, Dan Wells, Irene Winther, Benjamin Molineaux, Sharon Goldwater

- Developed a framework for the lemmatization of a morphologically rich language in a low-resource setting.
- Experimented with hard monotonic attention model for lemmatization and provided an early design for the morpho-syntactic parser.

Achievements

Poster Presentations

- First Position at 4th RBC-DSAI Workshop May 2019. Awarded a travel grant of \$250.
- First Position at Grace Hopper Celebration India 2018 (GHCI '18).

Travel Grants

- EMNLP 2018 Student Travel Scholarship.
- Microsoft Research India Student Travel Grant 2018.
- Grace Hopper Celebration India 2018 (GHCI '18) Student Scholarship.

Awards

- Computer Society of India Highest Committed Student Award 2015.
- Infibeam's Most Innovative Project Idea 2015.

Scholarships

- J.R.D. Tata Scholarship (Full Tuition Fee Waiver) 2013-14, 2014-15.
- Finalist for Narotam Seksaria Foundation's Engineering Excellence Scholarship 2015.

Teaching

University of Edinburgh

- Marker, Demonstrator - Natural Language Understanding, Generation, and Machine Translation (Spring 2021)
- Demonstrator - Accelerated Natural Language Processing (Fall 2020)
- Marker - Doing Research in Natural Language Processing (2020)

Indian Institute of Technology Madras

- Teaching Assistant - Introduction to Machine Learning (Fall 2017)
- Teaching Assistant - Reinforcement Learning (Spring 2018, Spring 2019)

Service

Organizer

- Workshop on Graphs and more Complex structures for Learning and Reasoning (GCLR) at AAAI-21.
Moderated the panel on *Learning and Reasoning with Complex graphs - a multi-disciplinary challenge*.
- CDT Pizzer Club - a monthly seminar series.

Reviewer

- AAAI (2020,2021), ACL (2020, 2021), COLING (2020), NAACL (2021)

Public Engagement

- I'm a Scientist Stay at Home - Mentor for Coding Zone, Summer 2020.
- International Women's Day Celebration 2020 - Edinburgh Hoppers.

Updated: 11th September, 2021