MOUNICA MADDELA

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EDUCATION

Georgia Institute of Technology, Atlanta, Georgia, USA 2020-2023
Ph.D. in Computer Science (GPA - 4.00/ 4.00)
Research Interests: Natural Language Generation and Natural Language Processing.

The Ohio State University (Transferred), Columbus, Ohio, USA 2017-2020
Ph.D. in Computer Science and Engineering (GPA - 3.94/ 4.00)

University of Pennsylvania, Philadelphia, Pennsylvania, USA 2013-2015
Master of Science in Computer and Information Science (GPA - 3.64 / 4.00)

International Institute of Information Technology, Hyderabad, India 2009-2013
Bachelor of Technology (Honors) in Computer Science and Engineering (GPA - 9.07 / 10.00)

PUBLICATIONS

- **EntSUM: A Data Set for Entity-Centric Summarization**
  Mounica Maddela*, Mayank Kulkarni*, and Daniel Preoţiuc-Pietro (* equal contribution)
  The Association for Computational Linguistics (ACL) 2022, long paper.
- **A Dataset of Word-Complexity Judgements from Deaf and Hard-of-Hearing Adults for Text Simplification**
  Oliver Alonzo, Sooyeon Lee, **Mounica Maddela**, Wei Xu and Matt Huenerfauth
  EMNLP Workshop on Text Simplification, Accessibility, and Readability (TSAR) 2022, short paper.
- **Extractive Entity-Centric Summarization as Sentence Selection using Bi-Encoders**
  Ella Hofmann-Coyle, Mayank Kulkarni, Lingjue Xie, **Mounica Maddela**, and Daniel Preoţiuc-Pietro
  The Asia-Pacific chapter of Association for Computational Linguistics (AACL-IJCNLP) 2022, short paper.
- **BiSECT: Learning to Split and Rephrase Sentences with Bitexts**
  Joongwon Kim*, **Mounica Maddela***, Reno Kriz, Wei Xu, and Chris Callison-Burch (* equal contribution)
  Empirical Methods in Natural Language Processing (EMNLP) 2021, long paper.
- **Controllable Text Simplification with Explicit Paraphrasing**.
  Mounica Maddela, Fernando Alva-Manchego, and Wei Xu.
  The North American Chapter of the Association for Computational Linguistics (NAACL) 2021, long paper.
- **Neural CRF Model for Sentence Alignment in Text Simplification**.
  Chao Jiang, **Mounica Maddela**, Wuwei Lan, Yang Zhong, Wei Xu.
  The Association for Computational Linguistics (ACL) 2020, long paper.
- **Code and Named Entity Recognition in StackOverflow.**
  Jeniya Tabassum, **Mounica Maddela**, Wei Xu, Alan Ritter.
  The Association for Computational Linguistics (ACL) 2020, long paper.
- **Multi-task Pairwise Neural Ranking for Hashtag Segmentation**.
  Mounica Maddela, Wei Xu, Daniel Preoţiuc-Pietro.
  The Association for Computational Linguistics (ACL) 2019, long paper.
- **A Word-Complexity Lexicon and A Neural Readability Ranking Model for Lexical Simplification.**
  Mounica Maddela, Wei Xu.
  Empirical Methods in Natural Language Processing (EMNLP) 2018, long paper.

PREPRINTS

- **LENS - A Learnable Evaluation Metric for Text Simplification**
  Mounica Maddela*, Yao Dou*, David Heineman, and Wei Xu (* equal contribution)
  arXiv:2212.09739, 2022

TECHNICAL SKILLS

- Programming Languages: Python, Java.
- NLP and Deep learning libraries: PyTorch, Hugging Face, Fairseq, ParlAI, Stanford CoreNLP, Scikit, NLTK.

INDUSTRY EXPERIENCE

Research AI Intern (FAIR group, Meta, USA). 08/2022 - 12/2022
Mentors: Y-Lan Boureau.

- Developed controllable text generation systems based on large language models to reframe unhelpful thoughts for mental health applications.

Research AI Intern (Text Enrichment team, AI Group, Bloomberg, USA). 05/2021 - 08/2021
Mentors: Mayank Kulkarni and Daniel Preoţiuc-Pietro.

- Developed an evaluation benchmark and controllable systems leveraging large language models for entity-centric summarization.

Software Development Engineer (Big Data Technologies, Amazon, USA). 06/2015 - 07/2017

- Developed a natural language interface to help customers communicate with our SQL query builder system.
- Improved data job monitoring experience in DataNet, one of Amazon's internal data management systems, to help the data analysts at Amazon run SQL queries on customer databases.

RESEARCH EXPERIENCE

Graduate Research Assistant, OSU/GT. (Advisor: Dr. Wei Xu) 08/2017 - present

- **Evaluation of Text Generation Models:** Developed a novel evaluation framework for paraphrase generation and related tasks. The framework leverages an interactive interface that can be scaled to gather human ratings of >20 generation systems simultaneously and then trains a neural evaluation model with an adaptive ranking loss. Our new supervised metric is better at dealing with different edit operations and correlates better with human judgments than the existing metrics on multiple text generation tasks such as text simplification, data-to-text generation, and style transfer.
- **Controllable Text Generation - Text Simplification:** Designed a new hybrid model that combines linguistically-motivated syntactic rules with a data-driven Transformer model to generate a simplified version of the input sentence. Our model can control the extent of each simplification operation namely splitting, deletion, and lexical paraphrasing. Our model outperformed the state-of-the-art in terms of both automatic metrics (3.1 points difference in SARI) and human evaluation.
- **Controllable Text Generation - Split and Rephrase:** Developed a new model that improves the meaning preservation of the sentence splitting systems and is more robust to noise in the training data. Our model leverages heuristics and linguistic rules to identify split-based edits and incorporates them into a customized loss function as distantly supervised labels.
- **Hashtag Segmentation:** Developed a novel neural model to break a hashtag into its constituent words. Our approach addresses the diverse language style in social media and also adapts to the type of hashtag. Our model outperformed the state-of-the-art by 1.8 points in F1 and also improved the performance of the downstream sentiment analysis task by 2.4 points in F1.
- **Lexical Simplification**: Designed a neural model to replace complex words in a sentence with simpler words. Our approach uses a combination of human judgments and linguistic features to estimate the readability of any given word or phrase.

Independent Study Project, UPENN. (Advisor: Dr. Lyle Ungar) 01/2014 - 05/2015

- Analyzed the distribution of sentiment words in social media posts to capture various interpretations of well-being across countries.

AWARDS

- The Ohio State University PhD Fellowship for 2017-2018
- Research Award for undergraduate students at IIIT-H for 2011-2012
- Dean's Academic Award List for all the 8 semesters (Fall 2009 - Spring 2013)

PROFESSIONAL ACTIVITIES

- Reviewer for ACL 2019-23, TSAR-2022, NAACL 2019-22, EMNLP 2019-21, W-NUT 2019-22, AAAI 2020, and ARR 2022-23.
- Co-organizer of Georgia Tech NLP seminar 2020-2021.
- Co-organizer of The GEM Benchmark: Natural Language Generation, its Evaluation and Metrics Workshop at ACL 2021.
- Advised undergraduate students: Joongwon Kim (2020-21) and David Heineman (2021-2022).

TALKS AND PRESENTATIONS

- Building and Evaluating Controllable Models for Text Simplification, GVU Seminar, Georgia Tech.
- Controllable Text Simplification with Explicit Paraphrasing, AI Group Seminar, Bloomberg.
- Multi-task Pairwise Neural Ranking for Hashtag Segmentation, AI Seminar, OSU.
- Lexical Simplification, AI Seminar, OSU.
- A Word-Complexity Lexicon and A Readability Model for Lexical Simplification, Midwest Speech and Language Days 2019.