Meng Cao

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EDUCATION

McGill University / Mila - Québec AI Institute Sept. 2019 – Present
Ph.D. in Computer Science GPA: 4.0/4.0
Advisor: Jackie Chi Kit Cheung

Northeastern University (China) Sept. 2015 – June 2019
Major in Software Engineering GPA: 3.96/4.0
Ranking: 1/59

RESEARCH INTERESTS

Natural Language Processing, Text Summarization, Text Generation, Reinforcement Learning

PUBLICATIONS

[1] Successor Features for Efficient Multi-Subject Controlled Text Generation
Meng Cao, Mehdi Fatemi, Jackie CK Cheung and Samira Shabanian
(Preprint)

[2] Analyzing Multi-Sentence Aggregation in Abstractive Summarization via the Shapley Value
Jingyi He, **Meng Cao** and Jackie C. K. Cheung
(The 4th New Frontiers in Summarization Workshop, EMNLP 2023)

[3] Responsible AI Considerations in Text Summarization Research: A Review of Current Practices
Yu Lu Liu, **Meng Cao**, Su Lin Blodgett, Jackie Chi Kit Cheung, Alexandra Olteanu and Adam Trischler
Findings of EMNLP 2023

[4] Systematic Rectification of Language Models via Dead-end Analysis
Meng Cao, Mehdi Fatemi, Jackie CK Cheung and Samira Shabanian
International Conference on Learning Representations (ICLR), 2023

[5] Learning with Rejection for Abstractive Text Summarization
Meng Cao, Yue Dong, Jingyi He and Jackie C. K. Cheung
In proceedings of the Conference on Empirical Methods in Natural Language Processing (EMNLP), 2022

[6] Hallucinated but Factual! Inspecting the Factuality of Hallucinations in Abstractive Summarization
Meng Cao, Yue Dong and Jackie C. K. Cheung.
In Annual Meeting of the Association for Computational Linguistics (ACL), 2022

[7] A Survey on Neural Abstractive Summarization Methods and Factual Consistency of Summarization
Meng Cao
ArXiv Preprint, 2021

[8] Factual Error Correction for Abstractive Summarization Models
Meng Cao, Yue Dong, Jiapeng Wu and Jackie C. K. Cheung
In proceedings of the Conference on Empirical Methods in Natural Language Processing (EMNLP), 2020

[9] TeMP: Temporal Message Passing for Temporal Knowledge Graph Completion
Jiapeng Wu, **Meng Cao**, Jackie Chi Kit Cheung, William L. Hamilton
In proceedings of the Conference on Empirical Methods in Natural Language Processing (EMNLP), 2020

[10] Referring Expression Generation Using Entity Profiles
Meng Cao and Jackie Chi Kit Cheung
In proceedings of the Conference on Empirical Methods in Natural Language Processing and the 9th International Joint

Conference on Natural Language Processing (EMNLP-IJCNLP), 2019

INDUSTRY EXPERIENCES

Google Research – Mountain View Aug. 2023 – Nov. 2023
Research Intern Advisor: Lei Meng

- Leverage the critique ability of LLM to improve policy-gradient based RL

Microsoft Research – Montréal Apr. 2022 – Mar. 2023
Machine Learning Research Intern Advisor: Samira Shabanian & Mehdi Fatemi

- Work on detoxification of large language models like GPT-3
- Our approach, *rectification*, utilizes a separate but significantly smaller value function for detoxification
- Paper accepted by ICLR 2023

Huawei Noah's Ark Lab – **Montréal** May 2021 – Mar. 2022
Applied Machine Learning Research Intern Advisor: Mehdi Rezagholizadeh

- Knowledge distillation for text generation tasks
- Data augmentation for knowledge distillation using cluster labels

Borealis AI – **Toronto** May 2020 – Aug. 2020
Research Intern, Alan Team Advisor: Yanshuai Cao

- Build a distributed data-parallel Text-to-SQL system
- Applied meta-learning algorithms (MAML, Reptile, MetaReg) in cross-database semantic parsing task
- Achieved promising results in the zero-shot domain transfer setting

IBM Research – **Beijing** Sept. 2018 – June 2019
Research Assistant Intern, Information Analytics Team Advisor: Shiwan Zhao

- Chinese word segmentation: responsible for training Chinese word segmentation model. Proposed a novel segmentation model based on n-gram and information entropy to segment the input sentences
- Neural Architecture Search: PyTorch implementation of Google's ENAS neural architecture algorithm
- Migrated a neural network model which is implemented in Keras into Java environment using Deeplearning4j

PRESENTATIONS AND TALKS

Learning with Rejection for Abstractive Text Summarization (Poster) Dec., 2022
EMNLP 2022 Abu Dhabi, UAE

Factual Error Correction for Abstractive Summarization Models (Poster) Nov., 2020
EMNLP 2020 Online

Referring Expression Generation Using Entity Profiles (Poster) Nov., 2019
EMNLP 2019 Hong Kong, China

SCHOLARSHIPS

China National Scholarship (¥ 16,000) 2015-2016, 2017-2018
The Chinese Government, among top-0.2% all undergraduates in China

The Bao Gang Education Scholarship (¥ 10,000) Sept. 2018
China BAOWU Steel Group, selected rate: 4/20000 in NEU

The First-Class Scholarship in Northeastern University (¥ 9,000) 2015-2016, 2016-2017, 2017-2018
Northeastern University, among top-3% undergraduates in NEU

AWARDS

"Top Ten Undergraduates" in Northeastern University May 2018
Northeastern University, among top-0.2% undergraduates in NEU

The Excellent Performance Award for IBM Undergraduate Innovation Lab Program Apr. 2017

IBM Research China, Beijing

The First Prize in the 8th National College Students Mathematics Competition Oct. 2016

Chinese Mathematical Society

The First Prize in the 9th National College Students Mathematics Competition Oct. 2017

Chinese Mathematical Society

The Meritorious Winner for the Mathematical Contest in Modeling (MCM/ICM), 2018 Feb. 2018

COMAP, the Consortium for Mathematics and Its Applications (USA)

The Honorable Mention for the Mathematical Contest in Modeling (MCM/ICM), 2017 Feb. 2017

COMAP, the Consortium for Mathematics and Its Applications (USA)

RESEARCH FUNDING

Mitacs Globalink Research Internship ($19,500) June 2018 – Sept. 2018

Mitacs Globalink summer research internship program ($4,500) & Mitacs graduate student funding ($15,000)

SKILLS

Programming Languages: skilled in: Java, Python (especially NumPy, PyTorch); familiar with: Tensorflow, JavaScript, SQL

Extensive knowledge of: Natural Language Processing, Text Summarization, Deep Learning, Reinforcement Learning