

Aman Madaan

Ph.D. student at LTI, CMU

Interested in large language models, language generation, and reasoning

<https://madaan.github.io>

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[Google scholar](#), [Github](#)

EDUCATION

School of Computer Science, Carnegie Mellon University

AUGUST 2019 - PRESENT

M.S. & Ph.D. Language Technologies (CPA: 4.20/4.33)

Advisor: Prof. Yiming Yang

Indian Institute of Technology Bombay, Mumbai

JULY 2013 - JULY 2015

M.Tech. in Computer Science and Engineering (CPI: 10.0/10.0, Department Rank 1)

Thesis: Numerical Relation Extraction with Minimal Supervision

Guru Gobind Singh Indraprastha University, Delhi

JULY 2009 - JUNE 2013

B.Tech. in Computer Science and Engineering (Percentage : 87.4, Department Rank 1)

Thesis: Distributed Compilation as a Service

INDUSTRY EXPERIENCE

- **Google Bard Team, Google, CA** (May 2023 - Present)
(Research Intern)
- **Allen Institute for AI** (Oct 2022 - May 2023)
(Research Collaborator)
- **Google Research, Brain Team, CA** (May 2022 - August 2022)
(Student Researcher)
- **Oracle, Redwood Shores, CA** (December 2017 - August 2019)
(Principal Member of Technical Staff)
- **Visa, Foster City, CA** (August 2015 - December 2017)
(Senior Software Engineer/Decision Analytics Architect)

SELECTED PEER-REVIEWED PUBLICATIONS

- Luyu Gao*, **Aman Madaan***, Shuyan Zhou*, Uri Alon, Pengfei Liu, Yiming Yang, Jamie Callan, and Graham Neubig. Pal: Program-aided language models. In *International Conference on Machine Learning (ICML)*, 2023
- **Aman Madaan**, Alexander Shypula, Uri Alon, Milad Hashemi, Parthasarathy Ranganathan, Yiming Yang, Graham Neubig, and Amir Yazdanbakhsh. Learning performance-improving code edits. *DLAC@ICLR2023*, 2023
- **Aman Madaan**, Shuyan Zhou, Uri Alon, Yiming Yang, and Graham Neubig. Language models of code are few-shot commonsense learners. In *EMNLP*, 2022
- **Aman Madaan***, Niket Tandon*, Peter Clark, and Yiming Yang. Memory-assisted prompt editing to improve gpt-3 after deployment. In *EMNLP*, 2022
- **Aman Madaan**, Dheeraj Rajagopal, Niket Tandon, Yiming Yang, and Antoine Bosselut. Conditional set generation using seq2seq models. In *EMNLP*, 2022
- **Aman Madaan** and Yiming Yang. Flowgen: Fast and slow graph generation. In *Workshop on Dynamic Neural Networks, International Conference on Machine Learning (ICML)*, 2022
- Niket Tandon*, **Aman Madaan***, Peter Clark, and Yiming Yang. Learning to repair: Repairing model output errors after deployment using a dynamic memory of feedback. In *NAACL (Findings)*, 2022
- **Aman Madaan**, Niket Tandon, Dheeraj Rajagopal, Peter Clark, Yiming Yang, and Eduard Hovy. Think about it! improving defeasible reasoning by first modeling the question scenario. In *EMNLP 2021*, pages 6291–6310, 2021
- **Aman Madaan***, Dheeraj Rajagopal*, Niket Tandon*, Yiming Yang, and Eduard Hovy. Could you give me a hint? generating inference graphs for defeasible reasoning. In *Findings of the Association for Computational Linguistics: ACL 2021*, pages 5138–5147, Online, 2021

- **Aman Madaan** and Yiming Yang. Neural language modeling for contextualized temporal graph generation. In *NAACL 2021*, pages 864–881, Online, June 2021
- Amrith Setlur*, **Aman Madaan***, Tanmay Parekh*, Yiming Yang, and Alan W Black. Towards using heterogeneous relation graphs for end-to-end tts. In *2021 IEEE Automatic Speech Recognition and Understanding Workshop (ASRU)*, pages 1162–1169, 2021
- **Aman Madaan***, Amrith Setlur*, Tanmay Parekh*, Barnabas Poczoz, Graham Neubig, Yiming Yang, Ruslan Salakhutdinov, Alan W Black, and Shrimai Prabhumoye. Politeness transfer: A tag and generate approach. In *ACL 2020*, pages 1869–1881, Online, July 2020
- **Aman Madaan**, Shruti Rijhwani, Antonios Anastasopoulos, Yiming Yang, and Graham Neubig. Practical comparable data collection for low-resource languages via images. *PML4DC Workshop, International Conference on Learning Representations (ICLR)*, 2020
- **Aman Madaan**, Ashish Mittal, Mausam, Ganesh Ramakrishnan, and Sunita Sarawagi. Numerical relation extraction with minimal supervision. In *Thirtieth AAAI Conference on Artificial Intelligence*. **AAAI**, 2016

PRE-PRINTS

- **Aman Madaan**, Niket Tandon, Prakhar Gupta, Skyler Hallinan, Luyu Gao, Sarah Wiegrefe, Uri Alon, Nouha Dziri, Shrimai Prabhumoye, Yiming Yang, Sean Welleck, Bodhisattwa Prasad Majumder, Shashank Gupta, Amir Yazdanbakhsh, and Peter Clark. Self-refine: Iterative refinement with self-feedback, 2023
- **Aman Madaan*** and Amir Yazdanbakhsh*. Text and patterns: For effective chain of thought, it takes two to tango. *arXiv preprint arXiv:2209.07686*, 2022

INVITED TALKS

- **Code-Assisted Reasoning with LLMs** *Cohere AI Talk, Cohere For AI Regional Asia group* , Jun 2023 ([slides](#))
- **Self-Refining Language Models** *NVIDIA NLP Reading Group, NVIDIA*, April 2023
- **Language Models of Code are Few-shot Reasoners** *UIUC-NLP Seminar* , UIUC, December 2022 ([slides](#))
- **Text and Patterns - For Effective Chain of Thought, It Takes Two to Tango**, *Reasoning Research Weekly and N2Formal Literature Review, Google*, October 2022 ([slides](#))
- **Commonsense Reasoning with Large Language Models**, *CMU 11741, Machine Learning for Text and Graph-Based Mining Guest Lecture, CMU*, November 2022 ([slides](#))

AWARDS & ACHIEVEMENTS

- **Research Fellowship** by Carnegie Mellon University, covers 100% tuition for the Masters' (approximately \$45,000/year) and stipend, **2019-2021**
- **Above and Beyond Award** by Visa Inc., **Awarded six times** for work done on the Customer Segmentation Platform, SpendBot, leading initiatives that led to successful demos and technical talks, and *extraordinary contributions to the business*, **Jan 2016 - October 2017**.
- **Promoted within 11 months** of starting at Visa to Senior Decision Analytics Architect (*the average time for promotion to the level is 4 years*), **September 2016**.
- **TA Excellence Award** by Dept. of C.S.E., IIT Bombay, for work done while assisting Prof. Saketha Nath in CS 725 (**Foundations of Machine Learning**), **October 2015**.
- **Ajit Shelat Award**, *Given to a deserving M. Tech. student from the EE Dept and CSE Dept combined with the highest CPI*, 53rd Convocation, IIT Bombay, **August 2015**.
- **Institute Silver Medal**, 53rd Convocation, IIT Bombay, **August 2015**.
- **Winner, AngelHack Mumbai, (out of 38 teams)**. Selected for the finals and **accepted at HACKcelerator** program with office space, mentorship and \$5000 worth of Amazon AWS credits (*declined*), **June 2014**.
- **Best Outgoing Student Award, 2013 batch** by Bharati Vidyapeeth's College of Engineering. **May 2013**.
- **TCS Best Student Award**, Presented to **100 students across India**, **April 2013**.
- **All India Rank 9** in Graduate Aptitude Test in Engineering (GATE) 2013 out of **224,160** candidates, **March 2013**.

- **Excellence in Academics Award**, Lambda Eta Chapter, IEEE-HKN, BVCOE, New Delhi, **October 2012**.
- **Winner, TCS Mobeel, (out of 247 teams)**, All India Mobile application development competition. I was the **team lead** in a team of 3, **July 2012**.

PATENTS

- **Aman Madaan**, Jagdish Chand, Somashekhar Pammar, Venkata Sesha Rao Polavarapu, Sunil Sharma, Tarun Jain, Dirk Reinshagen, Derek Vroom, et al. Segmentation platform using feature and label pairs, October 25 2022. US Patent 11,481,661
- Ranjan Dutta, Varun Sharma, **Aman Madaan**, Somashekhar Pammar, and Zian Huang. Database conditional field access, August 10 2021. US Patent 11,086,871

PROFESSIONAL ACTIVITIES

- Program Committee Member (Reviewer): ACL ARR (2021 - present), ACL, EMNLP, NAACL (2020 - present), AAAI (2021 - present), EACL 2021 (**Outstanding reviewer**), AACL 2022, Neurips 2022
- Organizer, Workshop on Benchmark Evaluation for Natural Language Generation (GEM), ACL 2021

SKILLS

- **Currently using:** Python, Pytorch, Bash.
- **Prior Professional Experience:** Jax/Flax, Scala, Java, C++, Tensorflow, Apache Spark, Apache Hadoop, Deeplearning4j