

ADITYA PARASHAR

Amherst, Massachusetts

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EDUCATION

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| University of Massachusetts, Amherst <i>MS, Computer Science</i> <i>Courses: Advanced NLP ↗, Probabilistic Graphical Models, Reinforcement Learning, Applied Information Retrieval</i> | <i>2023 - Present</i> |
| Indian Institute of Technology(IIT), Guwahati <i>B.Tech, Mechanical Engineering(Minor in Mathematics)</i> <i>Courses: Computational Fluid Dynamics, Scientific Computing, Mathematical Statistics</i> | <i>2014 - 2018</i> 7.31 |

RESEARCH EXPERIENCE

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| Embedding spaces for faster sampling <i>Graduate Student Researcher, Google</i> <ul style="list-style-type: none">Implementing arithmetic sampling, an embarrassingly parallel strategy for generating highly diverse sequences from large language models.Evaluating this in conjunction with self-consistency based decoding, minimum bayes risk decoding and box-embedding strategies in various tasks. | <i>Feb 2024 - Present</i> |
| Improving open-source LLM generation using decoding-time strategies <i>Information Extraction and Synthesis Lab(IESL), Prof. Andrew McCallum</i> <ul style="list-style-type: none">Working on an inverse consistency based, decoding-time strategy to decrease the performance gap between open source LLMs and their closed counterparts.Exploring various probability normalization techniques for reranking LLM generations to assess their effectiveness across different benchmarks and task objectives. | <i>Fall '23</i> |
| USMLE (US Medical Licensing Examination) Question generation <i>Graduate Student Researcher, UMass BioNLP lab, Prof. Hong Yu</i> <ul style="list-style-type: none">Engineered a USMLE question generation system using a self-refining LLM(GPT-3+) based framework.Incorporated in context learning using clinical notes and a question bank into the prompts. Integrated a self-feedback loop with fine-grained feedback rubrics for iterative improvement. | <i>June 2023 - Present</i> <i>git repo ↗</i> |
| Language Technology Research Centre, IIIT-Hyderabad <i>Research Intern, with the guidance of Dr. Sukhada, IIT BHU</i> <ul style="list-style-type: none">Worked on interlingua-based machine translation for Indian languages under the National Language Translation Mission, Government of India, involving the development of language-independent Universal Semantics Representation (USR) datasets from Hindi sentences.Collaborated with linguists to develop algorithms for USR graph linearization, enhancing LLM (MT5 and BART) finetuning for sentence generation. | <i>March 2022 - January 2023</i> <i>git repo ↗</i> |

WORK EXPERIENCE

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| Agility E Services, Hyderabad <i>Software Engineer(Technology Specialist)</i> <ul style="list-style-type: none">IPaaS : Developed an on-demand multi-tenant cloud integration platform(IPaaS) for connecting cloud, on-premises applications, and data.<ul style="list-style-type: none">Implemented security features like role based access to the application, and secured Azure services like service bus, PostgreSQL server, and app services of the IPaaS using Microsoft Sentinel.Independently built a windows installer package with user-customizable settings for installing a windows service responsible for scheduling and locally executing the on-premises jobs configured in the IPaaS web studio. | <i>July 2018 - Sept 2022</i> |
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- Worked on the development of an inventory purchase and order management web application following the distributed **microservices** architecture and **CQRS** design pattern, in sync with a cross-functional agile team while adhering to **CI/CD** practices.
- Developed an **org-charting application**, with features to create and manage organization charts with nifty design controls on a canvas; share and export them in formats including editable PPTs.

ACADEMIC PROJECTS

Interpreting figurative language using prompting

Spring '23

Adv. NLP course project, Prof. Mohit Iyyer

git repo ↗

- Leveraged different prompting strategies to get better literal translations for figurative language texts, specifically Metaphor, Idiom, Simile and Sarcasm
- Used zero-shot prompting as our baseline and then tested few-shot prompting, instruction prompting and chain of thought prompting to compare performances across these strategies. x

TECHNICAL SKILLS

Programming Languages

Python, C# , Java, Typescript, Javascript, SQL

ML & Dev Frameworks

numpy, Pytorch, Huggingface, Angular, .NET Core, Xamarin Forms