

ADITYA PARASHAR

Amherst, Massachusetts

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EDUCATION

University of Massachusetts, Amherst

2023 - Present

MS, Computer Science

Courses: Advanced NLP ◊ , Probabilistic Graphical Models, Reinforcement Learning, Applied Information Retrieval

Indian Institute of Technology(IIT), Guwahati

2014 - 2018

B.Tech, Mechanical Engineering(Minor in Mathematics)

7.31

Courses: Computational Fluid Dynamics, Scientific Computing, Mathematical Statistics

RESEARCH EXPERIENCE

Google

Feb 2024 - Present

Graduate Student Researcher

- 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 for reasoning tasks and with minimum bayes risk decoding for machine translation tasks.

Information Extraction and Synthesis Lab(IESL), UMass

Fall '23

Graduate Student researcher, Prof. Andrew McCallum [submission under preparation]

- Developed a comprehensive framework for evaluating probability calibration techniques in zero-shot LLM inference, including an inverse consistency-based decoding-time strategy.
- Conducted extensive analysis using task-specific metrics to identify correlations between surface form competition and task performance, spanning a taxonomy of benchmarks and LLMs.

UMass BioNLP lab

June 2023 - Present

Graduate Student Researcher, Prof. Hong Yu [submission under preparation]

git repo ◊

- 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.

Language Technology Research Centre, IIIT-Hyderabad

March 2022 - January 2023

Research Intern, with the guidance of Dr. Sukhada, IIT BHU

git repo ◊

- Worked on interlingua-based machine translation, involving the development of language-independent Universal Semantics Representation (**USR**) datasets for Hindi and Sanskrit by parsing multilingual data.
- Collaborated with linguists to develop algorithms for USR graph linearization, enhancing **model (MT5 and BART) performance** for sentence generation through finetuning.

WORK EXPERIENCE

Agility E Services, Hyderabad

July 2018 - Sept 2022

Software Engineer(Technology Specialist)

- **IPaaS:** Developed a scalable, multi-tenant cloud integration platform (**IPaaS**) for facilitating automated data integration between cloud and on-premises applications.
 - Implemented a Windows service for scheduling jobs within the IPaaS web studio, orchestrating its deployment through a customizable installer package for streamlined execution and management of jobs.
 - Engineered **security** protocols 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**.

- **Procurement platform:** Worked on the development of an inventory purchase and order management web application in sync with a cross-functional agile team.
 - Migrated the application from monolithic to a distributed **microservices** architecture while incorporating the continuous integration and deployment (CI/CD) pipeline for reliability.
 - Implemented the command and query responsibility segregation (**CQRS**) design pattern to ensure scalability, synchronization and management of workloads.

ACADEMIC PROJECTS

Interpreting figurative language using prompting

Spring '23

Adv. NLP course project, Prof. Mohit Iyyer [under review at a *CL conference]

[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.

TECHNICAL SKILLS

Programming Languages

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

ML & Dev Frameworks

numpy, Pytorch, Huggingface, Angular, .NET Core, Linux