



# Dhananjay Ashok

PhD Student at the University of Southern California

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**FOCUS:** Factually Grounded Language Model and Multimodal Model Systems

## EDUCATION

### Ph.D. in Computer Science, University of Southern California (Ongoing)

Researching Factual Grounding  
in LLMs and Multimodal LMs  
Supervisor: [Prof. Jonathan May](#)

### M.Sc. in Machine Learning, Carnegie Mellon University

Researched Distribution Shift  
and LLMs for Science  
Supervisor: [Prof. Zack Lipton](#)

### B.Sc. CS and Econ, University of Toronto,

Researched Robotic Control  
and Neurosymbolic-AI  
Supervisors: Prof.

## AWARDS

- Annenberg Fellowship
- Dean Honour Scholar, UofT
- Valerie Brooks Scholarship
- William Kingston Scholarship

## SKILLS

- Algorithms and Data Structures
- Python, C/C++, Bash, Java, Perl
- PyTorch, TensorFlow, Jax
- HuggingFace, Accelerate, DeepSpeed
- Distribution, Parallelization and Quantization of LLMs
- Fine-tuning, Prefix Tuning and Preference Optimization of LLMs
- Independent research

## PUBLIC SPEAKING

First speaker from a developing country to be judged [Best Speaker](#) at the World School Debating Championship

## INDUSTRY EXPERIENCE

### Machine Learning Research Engineer, Apple Inc. (Summer 2023)

- Developed systems for automated understanding and processing of log files
- Implemented MultiAgent RL Solutions to 6G Cellular Networking Problems

### Accelerate AI Research Intern, Borealis AI. (Summer 2022)

- Developed new algorithms for gradient free training of Neural Networks
- Created GDSolver, the first Hybrid Solver+GD Framework for Fine-tuning NNs

### Research Engineering Intern, AWS. (Summer 2021)

- Utilized C to verify security of safety critical AWS services and protocols

## RESEARCH EXPERIENCE

### CUTELABNAME, Prof. Jonathan May (2024-Current)

- Investigating problems related to [Factual Grounding](#) of Language Model systems

### AutonLab, Prof. Barnabas Póczos (2022-2024)

- Researched [Scientific Error Correction](#), developing a method that outperformed GPT3 despite having only 0.1% as many parameters

### ACMI Lab, Prof. Zachary Chase Lipton (2022-2024)

- Created a State-of-the-art [Few Shot NER](#) System using LLMs
- Developed a principled [Distribution Shift](#) detection and mitigation method

### Vector Institute, Prof. Animesh Garg (2019-2022)

- Applied methods from [causal discovery](#) for [robotic manipulation and control](#)

### Vijay Ganesh, Prof. Vijay Ganesh (2019-2022)

- Created algorithms for [verifiably compliant](#) ML systems

## SELECTED FIRST AUTHOR PUBLICATIONS

### SciFix: Outperforming GPT3 on Scientific Factual Error Correction: **EMNLP**

- Conducted a detailed study of Controllable Text Generation methods, showing that instruction tuning consistently outperforms most approaches
- Introduced ConGenBench, a benchmark with hard controllable generation problems to facilitate future research

### PromptNER: Prompting For Named Entity Recognition

- Developed a State-of-the-Art FewShot NER system, outperforming all prior methods on 6 different FewShot NER benchmarks using 2% of the available data

### Controllable Text Generation in the Instruction Tuning Era

- Conducted a detailed study of Controllable Text Generation methods, showing that instruction tuning consistently outperforms most approaches
- Introduced ConGenBench, a benchmark with hard controllable generation problems to facilitate future research