

ADITI MISHRA

Tempe, AZ

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SUMMARY

PhD candidate specializing in HCI+AI, Visual Analytics NLP and Reinforcement Learning.
Incoming Research Intern in the HCI team at **Autodesk Research, Toronto**.

EDUCATION

Arizona State University

Doctor of Philosophy (PhD)

Major: Computer Science

June 2019 - Present

Current GPA: 3.82/4

International Institute of Information Technology - Bhubaneswar

Bachelor of Technology (BTech).

Major: Computer Science and Engineering

August 2014 - May 2018

CGPA: 8.53/10

PUBLICATIONS

- Huang, J., Chen, C. **Mishra, A.**, Kwon,B.C., Liu, Z., Bryan, C. On CILP's Ability of Analyzing Fake Images at Large Scale: Why are they fake? (2024) *GenAICHI, 2024*
- **Mishra, A.**, Rahman, S., Kim, H., Mitra, K., Hruschka, E. Characterizing Large Language Models as Rationalizers of Knowledge-intensive Tasks , (2023) *Under review ACL, 2024* ([link](#))
- **Mishra, A.**, Soni, U., Arunkumar, A., Huang, J., Kwon,B.C., Bryan, C. PromptAid: Prompt Exploration, Perturbation, Testing and Iteration using Visual Analytics for Large Language Models, (2023) *Under review TVCG* ([link](#))
- Huang, J., **Mishra, A.**, Kwon,B.C., Bryan, C. ConceptExplainer: Understanding the Mental Model of Deep Learning Algorithms via Interactive Concept-based Explanations. *IEEE Vis 2022* ([link](#))
- **Mishra, A.**, Soni, U., Huang, J., Bryan, C. Why? Why not? When? Visual Explanations of Agent Behavior in Reinforcement Learning. *IEEE 15th Pacific Visualization Symposium (PacificVis), 2022* ([link](#))
- **Mishra, A.**, Ginpalli, S., Bryan, C. News Kaleidoscope: Visual Investigation of Coverage Diversity in News Event Reporting. *IEEE 15th Pacific Visualization Symposium (PacificVis), 2022* ([link](#))
- Zhao, J., Xu, S., Chandrasegaran, S., Bryan, C., Du, F., **Mishra, A.**, Qian, X., Li. Y., Ma, K.-L. (2021). ChartStory: Automated Partitioning, Layout, and Captioning of Charts into Comic-Style Narratives. *IEEE Transactions on Visualization and Computer Graphics* (2021). ([link](#))
- Bryan, C., **Mishra, A.**, Shidara, H., & Ma, K.-L. (2020). Analyzing Gaze Behavior for Text-embellished Narrative Visualizations under Different Task Scenarios. *Visual Informatics*, 4(3), 41–50, 2021. ([link](#))
- Huang, J., **Mishra, A.**, Arunkumar, A., & Bryan, C. (2020). TotemFinder: A Visual Analytics Approach for Image-based Key Players Identification. In 2019 IEEE Conference on Visual Analytics Science and Technology (VAST). **VAST Challenge 2019 Honorable Mention**.
- **Mishra, A.**, Hazarika, S., Biswas, A., ,Bryan, C. News Filling the Void: Deep Learning-based Reconstruction of Sampled Spatiotemporal Scientific Simulation Data. (2021) *Under review* ([link](#))

ONGOING WORK

- Human in the loop Knowledge distillation from LLMs to smaller open sourced LMs.
- Visual analytics interface to summarize RL agent's policy to end user using abstract high level human understandable "concepts".

WORK EXPERIENCE

ASU Sonoran Visualization Lab - Research Assistant

Aug 2019 - Present

Advisor: Dr Chris Bryan

- Developed an AI-driven frontend interface to recommend **prompting** changes for **RoBERTa**, **T0pp 5b**, and **LLaMA-2 13b language models**, incorporating linguistic and contextual cues.
- Reduced prompt engineering **time by 30%** and **increased task accuracy by 10%**, with a **96%** user preference.
- **Tech Stack:** Pytorch, Python, Huggingface, AWS Sagemaker, Databricks

Stanford Healthcare - Data Science Intern

Jan 2024 - Present

Advisor: Dr Nikesh Kotecha

- Working on developing tools for summarizing and evaluating longitudinal patient health records (EHR) using **GPT-4 32k** without the presence of ground truths.
- Developing **RAG-based approaches** to medical question answering for clinicians.
- Developed and deployed a visual analytics interface to **debug and self-refine LLM chains**.
- **Tech Stack:** Pytorch, Python, Huggingface, Docker

Megagon Labs - Summer Research Intern

May 2023 - Aug 2023

Advisor: Dr Sajjadur Rahman

- Developed a rationalization framework using **GPT-3,4** to **rationalize knowledge augmented models (KGAM)** for question answering task.
- Employed **Docker** and **AWS EC2** instances for model training and inferencing.
- Rationalizations generated **surpassed State-of-the-Art benchmark** with an approval rating of 62%.
- **Tech Stack:** Pytorch, Python, Huggingface, AWS EC2, Docker, Mechanical Turk

Los Alamos National Lab - Summer Research Intern

June 2020 - August 2020

Advisor: Dr Ayan Biswas

- Built a suite of **deep learning models** to reconstruct large unstructured scientific datasets.
- Developed frontend for expert users to visually analyze differences in reconstruction qualitatively and quantitatively.
- **Tech Stack:** Pytorch, Python, D3.js, NodeJS, Flask, React

TECHNICAL STRENGTHS

Skills: Visual Analytics, Explainable AI (XAI), Trustworthy AI, Fairness, Reinforcement Learning, Large Language Models, Deep Learning, Machine Learning, MLOps

Languages: Python, R, C, C++, MySQL, MLOps

Frameworks: Linux, PyTorch, PySpark, Langchain, Keras, Tensorflow, Docker, Django

Web Technologies: D3.js, HTML5, CSS3(Grid, Flexbox, SASS), Bootstrap, Node.js Java Script, jQuery, NodeJS, ReactJS, React Router, Flask, REST API, Svelte

Databases and Cloud Platforms: AWS, S3, SQL(Oracle, MYSQL), NoSQL (Mongo)

HONORS AND AWARDS

SCAI Doctoral Fellowship, ASU	2022
Graduate College Travel Award, ASU	2022
Grace Hopper Scholar - Orlando, Florida	2019

MENTORSHIP EXPERIENCE

- **PhD** - Kaustuv Mukherji (Spring 2023 - Present)
- **Masters** -
 1. Kannak Sharma, Sanidhya Chauhan, Ravindersingh Anand, Niranjana Pai (Spring 2024 - Present)
 2. Manimozhi Shekar, Sushmita Mallick, Riyank Mukhopadhyay (Spring 2023 - Present)
 3. Akashkiran Shivakumar, Natarajan Muthuraman, Adithya Natarajan, Arvind Kuppusamy (Fall 2022)
 4. Ananya Pal, Aniket Devle, Chirag Vartak, Kevin Shah, Saikat Datta, Siddhant Srivastava (Fall 2021)
- **Undergraduate** - Shashank Ginpalli (2019)

ACADEMIC SERVICES

I regularly review for venues: IEEE Vis, TVCG, PacificVis, CHI and TiiS.