

ADITYA MAJUMDAR

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Ph.D. Student in Informatics ✦ Penn State University ✦ State College, PA, USA

EDUCATION

Pennsylvania State University (GPA: 4.0/4.0)
Ph.D. in Informatics
Advisor: Prof. Amulya Yadav

State College, US
Aug.2024 - Present

Pennsylvania State University (GPA: 3.86/4.0)
B.S. in Computer Science (Minor in Engineering Leadership Development)
Cum Laude

State College, US
Aug.2020 - May.2024

SELECTED AWARDS & FELLOWSHIPS (BY YEAR)

- **LinDiv Fellowship** | NSF NRT, Penn State University 2025
Selected as one of a small cohort for a prestigious NSF-funded traineeship to advance human-centered technology for linguistically diverse populations through interdisciplinary research and training.
- **DAAD RISE Award** | German Academic Exchange Service 2023
Selected as one of 280 students from a pool of 1,700 applicants to conduct research in Germany.
- **Fotis Scholarship** | Penn State University 2023
Awarded to 5 Residential Assistants out of 300 for outstanding leadership and scholastic achievements.
- **Mike Erdmann Global Leadership Award** | SEDTAPP, Penn State University 2023
Recognized as the sole recipient among 35 students in the ELD minor for commitment to professional excellence.

PUBLICATIONS

[UNDER REVIEW] **Aditya Majumdar**, Wenbo Zhang, Kashvi Prawal, Amulya Yadav. *The Hardness of Achieving Impact in AI for Social Impact Research: A Ground-Level View of Challenges & Opportunities* Submitted to AIES 2025.
[UNDER REVIEW] Wenbo Zhang, **Aditya Majumdar**, Amulya Yadav. *CHAI for LLMs: Improving Code-Mixed Translation in Large Language Models through Reinforcement Learning with AI Feedback*. Submitted to EMNLP 2025.
[UNDER REVIEW] Bonam Mingole, **Aditya Majumdar**, Firdaus Choudhury, Amulya Yadav. *Dr. GPT Will See You Now, but Should It? Exploring the Benefits and Harms of Large Language Models in Medical Diagnosis using Crowdsourced Clinical Cases* Submitted to AIES 2025.

RESEARCH & INDUSTRY EXPERIENCE

Pennsylvania State University, Research Assistant, PA, US

Research Topic: Barriers to Deployment in AI for Social Good

Jan.2025 - Present

Advisor: Prof. Amulya Yadav

- Conducting a qualitative study using semi-structured interviews with AI researchers and practitioners to examine why many AI for Social Good (AI4SG) projects fail to deploy.
- Designing and conducting semi-structured interviews with researchers and practitioners in the AI4SG space.
- Applying qualitative coding and thematic analysis to uncover patterns related to misaligned academic incentives, stakeholder collaboration challenges, and gaps between prototyping and field deployment.
- Aiming to produce actionable insights for improving the impact and sustainability of AI4SG initiatives through more context-sensitive design and evaluation practices.

Research Topic: AI for Public Health

Jan.2025 - Present

Advisor: Prof. Amulya Yadav

- Preprocessed physician-labeled medical datasets to evaluate AI-generated responses using LLMs (e.g., GPT-4).
- Designed few-shot prompting strategies and varied in-context example sizes to assess model sensitivity and consistency.

- Automated evaluation pipelines that used LLMs to replicate physician grading of AI responses across different experimental settings.
- Implemented a majority-voting ensemble strategy and ROC-based threshold selection to quantify model performance and optimize classification metrics.
- Analyzed performance using F1 scores, precision, recall, and AUC metrics to assess the reliability of LLM evaluations in public health tasks.

Research Topic: AI for Social Good

Aug.2024 - Present

Advisor: Prof. Amulya Yadav

- Leading a collaborative project with an NGO in the Philippines supporting children affected by online sexual abuse.
- Scheduled and facilitated weekly meetings, communicating high-level technical concepts in layman's terms to ensure mutual understanding among non-technical stakeholders.
- Designed and developed a Flutter-based application tailored to the NGO's requirements, integrating AppSheet API for database management.
- Conducted requirements engineering to align the application's features with the NGO's objectives while ensuring minimal to no cost for the app's deployment.
- Delivered an end-to-end solution optimized for efficiency and accessibility, supporting the NGO's mission to provide timely support for affected children.

Research Topic: Code-mixing Abilities of LLMs

Sep.2023 - Present

Advisor: Prof. Amulya Yadav

- Implemented fine-tuning methodologies for large language models, including GPT-4o, with a focus on code-mixed languages, utilizing the Hugging Face framework.
- Developed Python scripts to pre-process data for both training and testing sets, ensuring the quality and relevance of input data for language model training.
- Leveraged Google Cloud Platform to deploy and optimize AI models, contributing to streamlined and efficient execution of the developed models.

DAAD RISE Scholar | University of Konstanz, Germany

May.2023 - Aug.2023

Research Topic: Cyber-Physical Systems

Supervisor: Eduard Buss

- Devised plotting scripts utilizing Matplotlib, Pandas, and NumPy libraries for time series analysis.
- Pioneered the creation and production of 3D models for multiple sensors, subsequently constructing three distinct experimental assemblies.
- Engineered a sophisticated synchronized system employing the Hub-and-Spoke architecture, integrating Lsyncd and Rsync for seamless coordination.
- Applied signal processing techniques, incorporating a lowpass Butterworth filter for precise data refinement.

Software Engineering Intern | LegalFundi, Cape Town, South Africa

May.2022 - July.2022

Supervisor: Daniel Nel

- Created React.js and CSS scripts to display the homepage of the company's website and chatbot.
- Completed 15 courses on software development for HTML, CSS, JavaScript, React.js, Firebase, NPM, and bootstrap.
- Organized weekly manager meetings to present updates regarding the website's progress by utilizing OKRs, Gantt charts and PowerPoint.

FELLOWSHIPS

DAAD RISE Scholar | University of Konstanz, Germany

TEACHING EXPERIENCE

Pennsylvania State University

- **Learning Assistant** | ENGR 408: Engineering Leadership Principles *Jan.2022 - May.2024*
- **Learning Assistant** | ECON 104: Introduction to Macroeconomics *Jan.2021 - May.2021*

PROFESSIONAL SERVICE

- **Center for Socially Responsible AI Student Leader** *Feb.2025 - Present*
Organizer of the [CSRAI Young Achievers Symposium](#) and [AI for Social Impact Series](#)

TECHNICAL SKILLS

Programming Languages	Python, C, Java, JavaScript, HTML, CSS, SQL
Framework & Tools	Numpy, PyTorch, Matplotlib, Pandas, Scikit-learn, React, Bootstrap