

Kaushik Pillalamarri

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Education

North Carolina State University **Aug 2024 – July 2028**
PhD in Computer Science ; CGPA 4/4 *Raleigh, NC*
Relevant Courses: Geospatial AI, Advanced Machine Learning

North Carolina State University **Aug 2022 – July 2024**
Master of Computer Science ; CGPA 4/4 *Raleigh, NC*
Relevant Courses: Natural Language Processing, DevOps, Software Engineering, Machine Learning and Data Analysis

Teaching Assistant for CSC 520 - Artificial Intelligence

National Institute of Technology **Jul 2018 – Jun 2022**
Bachelor of Technology in Electrical Engineering *Andhra Pradesh, India*

Technical Skills

Languages: Python, C++, SQL, Bash **Developer Tools:** MATLAB, AWS, Docker, Kubernetes, Git, Ansible, GitHub Actions
Libraries: Tensorflow, Pytorch, Scikit-Learn, Pandas, Numpy, NLTK, SpaCy, Matplotlib, BeautifulSoup

Experience

Generative Intelligent Computing Lab, NCSU **Jul 2024 - Present**
Graduate Research Assistant *Raleigh, NC*

- Performed extensive literature survey to accelerate Vision-Language models and to identify key bottlenecks in Trustworthy AI.
- Utilized diverse datasets, including market research data, Google Street-View images, and online reviews, to analyze transit-induced gentrification and its impacts on neighborhoods
- Applied multi-modal learning, spatial analysis, and econometric models to identify vulnerable businesses, predict neighborhood dynamics, and support equitable urban development policies.

RENCI (Renaissance Computing Institute) **May 2024 - Present**
Research Intern *Chapell Hill, NC*

- Contributed to various projects within the Prototype Open Knowledge Network, focused on developing capabilities for uniform deployment and integration of independently modeled knowledge graphs.
- Worked on harmonizing overlapping content in knowledge graphs, aiming to integrate them into an Open Knowledge Network for seamless query and analysis.
- Developed federated graph embeddings for knowledge graphs to capture similarities across graphs, enabling the automatic combination of similar nodes within queries.
- Implemented a custom sparql parser and translator and integrated the changes into the comunica query engine.
- Led a team of three including mentoring a NSF-REU student to successfully accomplish project deliverables on time.

DataMinr - Multiagent Systems and Social AI Laboratory, NCSU **Feb 2024 - Aug 2024**
Student Researcher *Raleigh, NC*

- Performed extensive literature survey on Sarcasm detection, and theories of sarcasm to identify key bottlenecks in performance.
- Generated synthetic data using LLMs to identify key features for sarcasm detection, validated through analysis of real-world data.

Christopher Healey Lab, NCSU **June 2023 - Aug 2023**
Graduate Student Researcher *Raleigh, NC*

- Devised a system based on Clustering and Large Language Models(LLMs) on news articles using extractive summarization to provide different ideological perspectives on the given news topic, for readers who are interested in seeing different perspectives
- Implemented web scraping techniques to collect data from various online news sources, utilizing BeautifulSoup.

Projects

LOLgarithm : Integrating Semantic, Syntactic and Contextual Elements for Humor Classification [\[paper\]](#)

- Leveraged ColBERT dataset to examine the humor content of a sentence and verify the linguistic theory of humor.
- Concatenated NRC word emotion lexicons, Word2Vec and BERT embeddings to generate syntactical, semantic and contextual information and visualized interpretations using SHAP and decision trees.
- Achieved an improvement of 25% in accuracy and 75% in F1-score on the test data over the previous model's performance.

Credit Card Fraud Detection: A Generative AI Approach [\[GitHub\]](#)

- Developed an AI-driven fraud detection system in Python using TensorFlow, leveraging Generative AI techniques to address class imbalance in highly imbalanced credit card transaction datasets.
- Implemented a CNN model classifier that achieved performance closer to SOTA performance which use more complex networks.

RESTLESS at 3 AM [\[GitHub\]](#)

- Engineered a robust CI/CD pipeline for the Coffee-project, a Node.js application, automating key stages of software development.
- Leveraged Docker for efficient containerization, ensuring consistency across various environments and orchestrated deployment and rollback using Kubernetes, optimizing application scalability and resilience.
- Integrated GitHub Actions to automate continuous integration and delivery, enabling seamless and reliable production deployments and employed Ansible for automation, streamlining repetitive tasks and enhancing overall workflow efficiency.