Sanidhya Vijayvargiya

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EDUCATION

Carnegie Mellon University Pittsburgh, PA, USA
Master of Science in Intelligent Information Systems *Dec 2025*
Courses in progress: *Advanced NLP, Search Engines, Generative AI*

Birla Institute of Technology & Science, Pilani Hyderabad, India
Bachelor of Engineering - Computer Science *July 2024*
Relevant Courses: *Natural Language Processing, Data Mining, Reinforcement Learning, Information Retrieval* GPA: 9.22/10

EXPERIENCE

Undergraduate Thesis at Nanyang Technological University Singapore (Remote)
Research Intern *July 2023 - April 2024*
- Incorporated POS tags in **code switched text generation** using modifications to architectures in MLMs.
- Implemented word and phrase alignment with a parallel corpus to identify code-switch points.
- Employed few-shot prompting for **LLMs with CoT** for text generation between the code-switch points.

MITACS Globalink Scholar Dalhousie University, Canada
Research Intern *June 2023 - April 2024*
- Led project on using fine-tuned MLMs and **RLHF** to solve problem of identifier renaming in code.
- Curated a high-quality variable name dataset.
- Renaming tool outperformed the original name, and Gemini Pro.
- Designed new **code readability** tool to measure improvements by proposed approach.

RESEARCH PROJECTS

OpenHands CMU, Pittsburgh
Advisor: Dr. Graham Neubig *August 2024 - Present*
- Working on interactivity in open-source AI agents.

In-context Learning with LLMs Hyderabad, India
BITS Pilani *December 2023 - May 2024*
- Investigated **induction heads** in one and two-layer transformer models to draw stronger correlations with ICL based on previous work by Anthropic.
- Replicated previous work and modified training to discourage formation of induction heads and observe the effect on ICL ability of the models in a team of two.

Undergraduate Research Assistant Hyderabad, India
BITS Pilani *Aug 2021 - Jan 2023*
- Worked on 7 research papers. Implemented numerous ML and DL models such as **ELMs, Ensemble Learning techniques, and LSTMs** and utilized feature selection techniques and statistical testing to validate claims.

PROJECTS

RL-based Football team
*Designed **multi-agent PPO with attention** mechanism achieving win rate of 0.7 after 600 games of training*

Incorporating BERT into Neural Machine Translation
Modified re-implementation of paper published in ICLR 2020 used to translate English to Dutch

SKILLS SUMMARY

- **Languages:** Python, TensorFlow, Pytorch, C++, MySQL, SQLite
- **ML:** Natural Language Processing, Reinforcement Learning, Information Retrieval
- **NLP:** RLHF, Code Generation, Summarization, Sentiment Analysis, Multilingual NLP

SELECTED PUBLICATIONS

- **Enhancing Identifier Naming Through Multi-Mask Fine-tuning of Language Models of Code**: First author for paper accepted at 24th IEEE International Conference on Source Code Analysis and Manipulation 2024
- **COVID-19 Article Classification using Word-Embedding and ELM with Various Kernels**: First author for paper published at 36th International Conference on Advanced Information Networking and Applications AINA 2022: Core B.
- **Software Requirements Classification using Deep-learning Approach with Various Hidden Layers**: First author for paper published at 17th Conference On Computer Science and Intelligence Systems FedCSIS 2022: Core B.
- **Software Comments Sentiment Analysis using LSTM with Various Padding Sizes**: First author for paper published at 18th International Conference on Evaluation of Novel Approaches to Software Engineering (ENASE 2023): Core B