Divyanshu Sheth

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EDUCATION

Carnegie Mellon University – Language Technologies Institute, School of Computer Science Pittsburgh, PA
Master of Science in AI, Natural Language Processing (Intelligent Information Systems) | GPA: 4.04/4.00 December 2024
Coursework (Grade): Advanced NLP (4) | Multimodal ML (4.3) | ML (4) | Code Generation (4.3) | Computer Vision (4) | QA (3.7)

Indian Institute of Technology (IIT) Kharagpur – Dept. of Computer Science, Industrial Engineering Kharagpur, India
Bachelor of Tech. + Master of Tech. in Electronics & Industrial Engineering, Minor in Comp. Sci., Micro in AI May 2023
Overall GPA: 8.97/10.00 (Class Rank 1 + Best Thesis Award) • *CS Minor* GPA: 9.48/10.00 • *AI Micro* GPA: 9.38/10.00
Relevant Coursework (Grade/10): ML (10) | NLP (10) | AI (10) | Algorithms (9) | Graph ML (8) | Software Design & Valid. (10)

PROFESSIONAL EXPERIENCES

adMarketplace Inc. New York, NY
Machine Learning Intern May 2024 - Present
- Engineered an e-commerce chatbot, **prompting** Claude 3.5 & training Llama 3 for database querying and follow-up gen.
- Built CTR time-series **forecasting** models using LightGBM and transformer models like PatchTST, improving MAE by **5%**
- Implemented vector & hybrid product **search** in Apache Solr using fine-tuned BGE embeddings, upping nDCG by **12%**

American Express Gurgaon, India
Artificial Intelligence Labs: Analyst Intern May 2022 - July 2022
- Used TAPAS and ALBERT-XXL in Python pipelines for **information extraction** and standardization of documents
- Designed and implemented an internal **web tool** to be used by **20+** teams using Flask, deploying the application on AWS

Unscrambl Inc. Atlanta, GA
NLP & Data Science Intern April 2021 - July 2021
- Created a **text-to-SQL** model + similarity-based model ensemble for a data-querying **chatbot**, upping accuracy by **15%**

ZappyAI London, United Kingdom
Machine Learning Intern May 2020 - August 2020
- Developed an analysis tool for long unstructured documents using **question answering** transformer models like BERT

PUBLICATIONS & RESEARCH EXPERIENCES

[Preprint] | NLP: Scalable Code Generation Benchmark Creation | CMU Pittsburgh, PA
Generative AI Research | Advisor: Prof. Carolyn Rosé, CMU Language Technologies Institute January 2024 – April 2024
- Implemented an LLM-powered pipeline to generate diverse, executable code samples for **code gen. benchmark** creation

[Publication @ ACL 2024] | NLP: Social Meaning Detection using Rationales | CMU | [GitHub] Pittsburgh, PA
Generative AI Research | Advisor: Prof. Carolyn Rosé, CMU Language Technologies Institute August 2023 - December 2023
- Created a prompting **framework** to generate **rationales** from LLMs, improving social meaning detection in **74%** cases
- Analyzed rationale augmentation impact on emotion and resistance strategy detection in in-domain and transfer settings

[Publication @ EMNLP 2022] | NLP: Creative Language Generation | UCLA | [GitHub] Los Angeles, CA
Generative AI Research | Advisor: Prof. Nanyun Peng, UCLA Computer Science February 2022 - June 2022
- Developed a SOTA framework for **generating puns** without supervised training, improving pun success rate by **9%**
- Devised a novel inference-time decoding algorithm, incorporating the structure of puns into GPT-2's generations

[Master's Thesis Project] | NLP: Evaluation of Dialogue Systems | IIT KGP | [GitHub] Kharagpur, India
Generative AI Research | Advisor: Prof. Pawan Goyal, IIT Kharagpur Computer Science August 2022 - April 2023
- **Evaluated** generated **dialogue responses** in few-shot/many-shot settings using GPT-3, ChatGPT, GPT-2, & other LLMs
- Prompt engineered GPT-3's performance to a **0.2** Pearson increase. Also improved performance by FLAN-T5 training

[Publication @ ECAI 2023] | NLP: Abusive Language Detection Modeling | IIT KGP | [GitHub] Kharagpur, India
NLP Research | Advisor: Prof. Animesh Mukherjee, IIT Kharagpur Computer Science May 2020 - December 2022
- Developed a novel BERT-based architecture using rationales for few-shot **abuse detection**, improving F1 score by **4%**

[Publication @ AAAI 2022 SDU] | NLP: Multilingual Acronym Identification | IIT KGP | [GitHub] Kharagpur, India
NLP Research | IIT Kharagpur Student-led Project May 2021 - August 2021
- Devised a novel SOTA architecture using character embeddings with mBERT for multilingual **acronym identification**

SKILLS

Programming Languages: Python, C/C++, SQL, MATLAB, JavaScript, HTML/CSS
Libraries: *Python*: PyTorch, Hugging Face Transformers, DeepSpeed, vLLM, Scikit-learn, Pandas, TensorFlow, Keras, Nixtla
Frameworks/Tools: Git, Unix/Bash, Docker, AWS, Azure, GCP, Databricks, Apache Solr, Airflow, Streamlit, Flask, CUDA, MPI