Mona Gandhi

+1(908)-720-0563 | monagandhi09@gmail.com | linkedin.com/in/monaGandhi09 | github.com/monaGandhi09

Education

University of Pennsylvania August 2022 - Present

Masters in Computer and Information Science *GPA: 4/4*

- *Relevant Coursework*: Artificial Intelligence, Natural Language Processing, Machine Learning, Analysis of Algorithms, Database Management Systems

Veermata Jijabai Technological Institute, India August 2018 - May 2022

Bachelor of Technology in Computer Science *CGPA:9/10*

- *Relevant Coursework*: Operating System, Machine Learning, Database Management Systems, Data Interpretation and Analysis, Web Technologies, Software Engineering, Cloud Computing, Wireless Networks, Network Security

Publications

CREPE: Can Vision-Language Foundation Models Reason Compositionally?| ***Paper*** CVPR'23

Zixian Ma, Jerry Hong*, Mustafa Omer Gul*,* ***Mona Gandhi****, Irena Gao, Ranjay Krishna*

- Evaluating huge vision-language models (CLIP) on two major aspects of systematicity and compositionality by introducing a new benchmark called CREPE.

Measuring Compositional Consistency for Video Question Answering| ***Paper*** CVPR'22

Mona Gandhi*, Mustafa Omer Gul*, Eva Prakash, Madeleine Grunde-McLaughlin, Ranjay Krishna , Maneesh Agrawala*

- Developed a question decomposition engine that deconstructs a compositional question from AGQA into a subquestion hierarchy which is a directed acyclic graph.
- Evaluated the performance of HCRN and HME models using consistency metrics on subquestion hierarchies for the AGQA dataset and learned that easier subquestions are incorrect while complex questions are answered correctly.

Research Experience

Extracting Features learnt by Deep Neural Networks August 2022 - Present

Mentor*: Prof. Ranjay Krishna | Computer Vision and NLP* *University of Washington*

- Extracting the features that a pre-trained model has learned while training and deriving their various use cases.
- One of the ideas is to train a hyper-network to learn the importance of each concept for a given label.

Interpretable Radiology Jan 2023 - Present

Mentor*: Prof. Mark Yatskar | Computer Vision and NLP* *University of Pennsylvania*

- Following up on a recent paper - LaBo to make interpretable radiology models, experimenting with CheXpert with ChatGPT concepts and MedCLIP.

Projects

Multi-modal Sarcasm Detection | *Python* Fall 2022

- Implemented a multimodal sarcasm detector using video, audio and text features from the MUStARD dataset.
- Trained and analyzed the performance of LSTMs with different types of attentions.
- Concluded that the best-performing model learns a bias towards labeling data as sarcastic, but it does very well in detecting non-sarcastic data.

Fake News Detection | *Python* | *Link* Spring 2021

- Developed a Fake News Detector using a transformer-based model - BERT, with the help of the labeled LIAR dataset.
- Analyzed the performance of our model with confusion matrix to deduce on which examples it performs well.
- Inferred that the model does well classifying false statements, and does a poor job classifying true statements.

Algorithm Visualizer | *HTML, CSS, React JS* | *Link* Spring 2020

- Developed a tool to visualize sorting algorithms like bubble sort, merge sort, and insertion sort.
- Created an interactive page that finds a path from the start node to the end node, using algorithms like Dijkstra, BFS, DFS, and visualizes it. Includes nodes with weights and walls as well.

Technical Skills

Languages: Python, C++, C, Java

Web Development: HTML, CSS, Javascript, PHP, React JS, SQL, NodeJS, Oracle DB

Development Tools: Linux, PyTorch, Tensorflow, Visual Studio, OpenCV, Hugging Face

Achievements/Extracurricular/Outreach

- 1^{st} rank among girls and 10^{th} rank overall in MHT-CET (state-level entrace exam) among 0.28 million students.
- Mentored a small cohort of students in PACT 2020 (*Link*) while being a part of the advanced group.