# Meghana Holla

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## EDUCATION

***Virginia Tech*** Blacksburg, VA
*Master of Science – Computer Science* *August 2021 - May 2023 (Expected)*

***PES University*** Bangalore, India
*Bachelor of Technology – Computer Science and Engineering* *August 2016 - May 2020*
- Specialization: Data Science

## RESEARCH EXPERIENCE

***PLAN (Perception + LANguage) Lab,* Virginia Tech** Blacksburg, VA
*Graduate Researcher* *September 2021 - present*
- Exploring neuro-symbolic methods for Natural Language Grounding in raw videos
- Working on enhancing semantic pre-training methodologies using multimodal transformers

***Center for Pattern Recognition and Machine Intelligence, PES University*** Bangalore, India
*Undergraduate Research Assistant* *August 2017 - December 2019*
- Devised novel ML approaches for Facial Recognition using key-point detectors and feature aggregation

## TEACHING EXPERIENCE

Graduate Teaching Assistant *(Virginia Tech - Spring 2022)* - Intro to Software Design (Class size: 404)
Graduate Teaching Assistant *(Virginia Tech - Fall 2021, Fall 2022)* - Computer Organization 1 (Class size: 460)

## PROFESSIONAL EXPERIENCE

***Bloomberg LP*** New York, NY
*Machine Learning Intern* *May 2022 - August 2022*
- Researched deep learning models for entity extraction of financial documents with focus on low deployment cost
- Implemented DistilRoBERTa and BiLSTM, with DistilRoBERTa enhancing predictive performance by 20%
- Developed plugin in Python for the in-house ML framework for simplified off-the-shelf usage of the above models

***Morgan Stanley*** Bangalore, India
*Technology Associate - Search and Analytics* *August 2020 - August 2021*
- Architected real-time trade reconciliation system handling 100,000 updates/day using Kafka, KSQL, Java
- Programmed Python frameworks for Solr document parsing and real-time indexing using SolrAPI
- Accomplished 50% reduction in search times for applicable cases by optimizing query pipelines in Java (SolrJ)
- Developed and maintained enterprise search solution stack comprising Apache Solr and Lucidworks Fusion

*Technology Analyst Intern* *January 2020 - July 2020*
- Implemented a dashboard for aggregating data from systems involved in stages of a trade life cycle using Python
- Built a self-service utility for servicing ad-hoc production requests using Python and Angular reducing wait time from 3 hours to 5 minutes

*Summer Intern* *May 2019 - July 2019*
- Refactored the in-house risk visualizer into a plug-and-play, highly configurable framework using Java and Angular

***MapMyIndia (CE Info Systems Ltd.)*** Bangalore, India
*Machine Learning Intern* *July 2018*
- Researched and evaluated Convolution Neural Network (CNN) variants for localizing important frames in street footage through semantic segmentation of significant objects such as roads, trees, crosswalks, and automobiles implemented in TensorFlow
- Achieved over 92% Jaccard Index on test data using Dilation10 architecture

## PUBLICATIONS

[1] **Meghana**, Das, B. (2021). Detection of Emphasis Words in Short Texts – A Context Aware Label Distribution Learning Approach. In: Advanced Informatics for Computing Research. ICAICR 2020. Communications in Computer and Information Science, vol 1393. Springer, Singapore [link]

[2] M. Vijay*, **M. Meghana***, N. Aklecha* and R. Srinath, "Dialog Driven Face Construction using GANs," 2020 IEEE 32nd International Conference on Tools with Artificial Intelligence (ICTAI), 2020 [link]
[3] **M. Holla***, N. Aklecha*, O. I. Dsouza* and B. Das, "Polarity Estimation in a Signed Social Graph Using Graph Features," 2020 IEEE International Students' Conference on Electrical,Electronics and Computer Science (SCEECS) [link]
[4] Vinay A*, Nishant Aklecha*, **Meghana***, K.N. Balasubramanya Murthy, S Natarajan. On Detectors and Descriptors based Techniques for Face Recognition, Procedia Computer Science, Volume 132, 2018 [link]

## SKILLS

Programming Languages: Python, C, Java, R, C++, JavaScript, MATLAB, HTML, CSS, SQL
Machine Learning: PyTorch, Keras, Sklearn, NLTK, Spacy, OpenCV
Frameworks/Tools: Kafka, KSQL, Apache Solr, SpringBoot, Angular, Lucidworks Fusion, Docker, Git, AWS

## ACADEMIC SERVICE

- Reviewer - EMNLP 2022 *August 2022*

## AWARDS AND HONORS

- Grace Hopper Celebration (GHC) 2022 Student Scholarship *June 2022*
- Recipient of full tuition scholarship from Virginia Tech Department of Computer Science *August 2021*
- Prof. CNR Rao Merit Scholarship awarded to top 15% performers: Six-time recipient *April 2017 - December 2019*

## RELEVANT ACADEMIC PROJECTS

***Dialog driven Face Generation using GANs*** *(PES University, 2020)*

- Devised a Deep Learning pipeline for human face generation and revision guided by Natural language (NL) feedback: trained a cascaded system of two conditional Generative Adversarial Networks (GAN) and developed an NL parser paired with pre-trained speech to text engine
- Achieved 73% mean relevance score (similarity score with chosen target face in database) when tested on retrieval task

***Emphasis Detection in Short Texts*** *(Personal, 2020)*

- Proposed novel deep learning approach for identifying segments deserving of emphasis in text (Natural Language Understanding)
- Accomplished performance boost of 10% from the state-of-the-art by training bi-directional LSTM network using Label Distribution Learning and hierarchical text embedding representing word and sentence level information

***Trip Duration Prediction and Analysis in Bike Sharing Systems*** *(Virginia Tech, 2021)* [Project Report] [Code]

- Designed and developed change-agnostic algorithm for trip duration prediction that employs novel coarse-grained station encoding based on location and purpose information and analyzed necessity of drop-off station in trip prediction task
- Achieved a 9.75% increase in Adjusted R-squared metric over traditional models that use fine-grained station information and a 300% increase with destination coarse-grained representation included in the feature set