AMOGH MANNEKOTE

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EDUCATION

University of Florida *January 2021 - Present*
PhD in Computer Science

Ramaiah Institute of Technology *August 2014 - August 2018*
Bachelor of Engineering
Computer Science and Engineering

RESEARCH INTERESTS

Dialogue Systems, Co-Creative and Collaborative Dialogue, Natural Language Processing, Zero-Shot Learning, and Human-Centered Computing

PUBLICATIONS

1. *Schemas in the Wild: Investigating Human Factors in the Development of Task-Oriented Dialogue Schemas* (Under Review), NAACL 2022
2. *Don't Just Paste Your Stacktrace: Shaping Discussion Forums in Introductory CS Courses*, SIGCSE 2022

EXPERIENCE

Fractal Analytics and Cuddle.AI, Bengaluru January 2020 - November 2020
Data Scientist

· Built an end-to-end evaluation framework for a Text-to-SQL semantic parser that reduced the time-to-release from one working day to a few minutes
· Developed a Named Entity Recognition and similarity scoring pipeline for identifying highly domain-specific skills from unstructured job listings

Rasa, Berlin (rasa.com) July 2019 - November 2019
Machine Learning Solutions Architect

· Developed machine learning solutions for enterprise customers to develop large-scale conversational AI projects in health, automotive, insurance, and retail domains.
· Made several software development contributions to the Rasa open source platform

Robert Bosch Center for Cyber Physical Systems, IISc, Bengaluru July 2018 - June 2019
Project Assistant under Dr. Raghu Krishnapuram

· Evaluated various approaches to Visual SLAM (Simultaneous Localization and Mapping) with sensor fusion in an outdoor, resource-constrained setting
· Improved the accuracy of a extrinsic calibration system that was based on Perspective-n-Point (PnP) by introducing a Grid Search step over the pixel-space of the images

IBM, Bengaluru April 2018 - June 2018
Intern - Watson Machine Learning Team

· Worked on integrating TensorFlow, Keras, and PyTorch frameworks into Watson's platform
· Helped a client migrate their existing, offline workflow to the Watson Machine Learning platform

Stride.AI, Bengaluru February 2017 - May 2017 and August 2017 - Feb 2018
Research Intern

- Designed the initial prototype of a conversational assistant that helps large organizations efficiently find in-house talent for help on highly specific problems with a natural-language question-answering interface
- Led a team of four in evaluating various approaches such as topic extraction, semantic similarity, text similarity, embedding approaches such as Doc2Vec and deep representation based approaches such as Siamese networks for the same

Game Theory Lab, Dept of Computer Science, IISc, Bengaluru June 2017 - August 2017
Intern under Dr. Y Narahari

- Studied types of prediction markets and scoring rules
- Eliminated the need for finding human participants for prediction markets by simulating the players' beliefs from sources such as news articles and tweets by applying sentiment analysis

DREAM Lab, Dept of Computational and Data Sciences, IISc, Bengaluru July 2016 - August 2016
Intern under Dr. Yogesh Simmhan

- Built a Raspberry Pi system that performed face detection, recognition, and signaled another device when an intruder was detected using an Apache Storm backend

Microsoft Student Developer Program June 2015 - August 2015
Student Developer

- Led a team of four in building a social Android app that helps students keep in touch with event updates from their favorite university clubs

KEY PROJECTS

Using Granular Annotations to Increase Out-of-Distribution Generalization Capacity of Gradient-Descent Based Machine Learning Models **(Undegraduate thesis)**
github.com/msamogh/RFFT

- With a small number of fine-grained human annotations, we showed that we can greatly increase the out-of-distribution generalization capacity of a neural network - for out-of-domain samples by penalizing high magnitudes of input gradients at regions of the input space that are known to be irrelevant (as part of the training cost function).
- End users and model developers could annotate a small number of examples using an intuitive web-based annotation tool for both images and text data.

nonechucks - A PyTorch library for dynamically handling data pipeline failures
github.com/msamogh/nonechucks

- nonechucks is an open source library for PyTorch that allows developers to transparently handle invalid or unwanted samples in their machine learning data pipelines. It also extends the existing construct of PyTorch's Data Transforms to function as Data Filters.
- nonechucks was featured in GitHub's worldwide list of trending Python repositories in the week following its release.

Rasa-Frames: A Frame-Based Dialogue Framework
github.com/msamogh/rasa-frames

Most slot-filling dialogue frameworks do not allow tracking multiple mentions of the same slot during a conversation, while it is quite natural to want to do so (e.g., comparing two different hotel options).

Rasa Frames is an open-source dialogue systems framework inspired by the Microsoft FRAMES dataset that allows multiple dialogue "frames" to be handled in parallel in a single dialogue.

TECHNICAL STRENGTHS

Computer Languages	Python, Java, Javascript, C/C++, SQL
Web/Mobile Platforms	HTML, CSS, ReactJS, AngularJS, Android
Machine Learning Frameworks	TensorFlow, PyTorch, Keras, Scikit-Learn
Tools	Git, Docker, Shell scripting