Anish Pimpley

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Education

University of Massachusetts Amherst

M.S. IN COMPUTER SCIENCE

Relevant Coursework: Deep Learning, Artificial Intelligence, Probabilistic Graphical Models, Applied ML, Advanced ML, Systems for DS, Algos for DS, 3D Deep learning, Affective Computing

Experience

Microsoft : Applied Scientist 2

AI PLATFORM - ABSTRACTIVE NLP WITH LLMS

- Building solutions for open NLP problems with large language models (LLMS) like GPT-3, GPT-3.5 & Codex
- Built industry-leading e2e product solutions for contextual text generation, structured extraction and reasoning tasks.
- Commentary summarization & blog generation project highlighted at Satya's CEO keynote for Ignite 2021 [Demo]

AZURE INFRASTRCTURE - ANOMALY DETECTION AND RCA AT SCALE

- Built at-scale anomaly & root cause detection system for faults detected over all azure telemetry.
- Implemented & deployed SOTA Correlation-Aware Heuristic Search in PySpark

OFFICE ML - CONVERT UNSTRUCTURED TEXT TO TABLES

- · Converted unstructured text into structured tables using 3 pronged approach. Namely, NLG, NER and Program synthesis.
- Implemented Transformer pipelines for NLG and NER use cases.
- Invented custom evaluation metric to determine table quality in isolation and in comparison to ground truth.

AZURE DATA GSL - GNNS & SIMULATORS FOR PETABYE SCALE RUNTIME PREDICTION OVER COMPUTATIONAL GRAPHS

- Built custom Graph Neural Network to operate over system execution graphs for run-time prediction given computational resource.
- Invented novel simulator for generating synthetic data and validated with online deployment.
- Created novel loss fn. by characterizing runtime-vs-resource as an inverse power-law parameterized by 2 scalars

RESPONSIBLE AI - CREATING MICROSOFT'S FIRST NLP INTERPRETABILITY TOOLKIT [REPO]

- Created a consistent text-interpretability API for NNs and classical models.
- Implemented 2 distinct SOTA text-interpretability models. Namely, Unified Info. & Introspective Rationale explainer.
- Conducted MLADS tutorial and presented at MSFT Build.[Demo]

MISC.

- Lead the teams's DS Sync meeting once every 2 weeks
- · Mentored multiple interns over every summer.
- Conducted interviews for hiring Applied Scientists.
- Kick-started the mental health awareness effort in team

Microsoft Research Montreal

INDUSTRY MENTORSHIP

- Developed novel architectures for Visual Question Answering (VQA) for relational reasoning.
- Proposed 4 models based on Conditional Batch Norm, Attention and Relation Nets.
- Achieved results competitive with SOTA on CLEVR and FigureQA datasets.

Mathworks

Computer Vision Intern	May 20
Implemented SOTA Deep Learning methods for the Computer Vision and Systems Toolbox.	

• Extended Deeplab v3+ as a generic concept for any feature extractor and formally deployed it as a part of CV toolkit.

Sensehawk

ML ENGINEER Developed a U-net inspired CNN for terrain segmentation and labeling of 3D point clouds. Honda

EXECUTIVE ENGINEER - DATA ANALYTICS Built failure forecasting regressors for personally compiled data set of 30k failure profiles.

Seattle, WA July 2019 - Present

Amherst, MA Jan. 2018 - May 2018

Boston, MA 018 - Dec 2018

Jun 2016 - Nov 2016

Jul 2015 - Feb 2016

Massachusetts, US

Jan. 2017 - May 2019

Publications_

2022	EDBT, Towards Optimal Resource Allocation for Big Data Analytics	[Link]
2022	US Patent, [Optimizing job runtimes via prediction-based token allocation]	[Link]
2021	US Patent app., Intelligent table suggestion & conversion for text	
2020	CMAI ER, Evaluating Tree Explanation Methods for Anomaly Reasoning	[Link]
2018	Preprint, Maluuba FigureQA: Visual Question Answering for Relational Reasoning	[Link]

Projects

Cascaded Loss Functions for Computationally Efficient CNNs

RESEARCH WITH PROF. BEN MARLIN

- Investigated and proposed novel method for Stage-wise Regularization in Neural Network based Sparse Cascade Classifiers.
- Achieved early prediction in over 90% images with overall accuracy of 97% on noisy MNIST dataset.
- Guided selection of number of stages & model sparsity using regularization strength as a greedy heuristic.

Miscellaneous Projects

- Implementation of a Seq2Seq RNN for synthesizing facial movements from human audio.
- Expectation maximization from scratch for mixture models with Gaussian, Multinoulli and Poisson components.
- Developed a distributed mapReduce-esque fault tolerant master & slave framework from scratch in Java.

Skills____

Programming Python, Java, LaTeX, Git, Pytorch, PySpark, SkLearn, Spacy, Hugging face

Amherst MA

May. 2017 - Dec. 2017