Aryaman Jeendgar

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Graduate Technical Intern at Intel Labs
and Student Developer at CVXPY

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A Fourth-year undergraduate from BITS Pilani, double majoring in Physics and Electronics and Communications Engineering with a keen interest in mathematically-driven research and engineering robust ML systems.
Personal webpage: `https://aryamanjeendgar.github.io/`

Education

Masters in Physics and Bachelors of Engineering in Electronics and Communications Engineering, *Birla Institute of Technology and Science* AUG 2019 — PRESENT

Skills

Tools and Languages	Python, C++, Numpy, scikit-learn, Pytorch, Git, emacs, LaTeX
Research Interests	Convex Optimization, Statistical Learning Theory, Deep Learning Theory, Online Optimization, Reinforcement Learning, Causal Inference, Bayesian analysis

Past Research/Intern(s)

Graduate Technical Intern **JUNE 2022 — SEP 2022**
Intel Labs, Cloud Systems Research Lab *Bangalore, Karnataka*

Manager: Nilesh Jain and collaboration with Sameh Gobriel

- Working on *linearly* scaling out all the queries supported by the VDMS database.
- Wrote a `shard` mode of operation for VDMS that linearly scales out the `Add` queries
- Worked on the problem of optimizing Approximate Nearest Neighbor queries (as performed by `FAISS` and the `FLINNG` libraries) in this 'scaled-out' setting.
- Framed the problem of the above query optimization as an online algorithm, and researched the use of online clustering algorithms for "smarter" splitting of feature vector across different machines → was able to observe linear scalability of *Similarity Searches* (with the number of servers) with this solution.

Student Developer @ CVXPY **MAY 2022 — OCTOBER 2022**
Google Summer of Code *Remote*

*Mentor: Riley J. Murray, Blog for the project, **Final Report***

- Implementing a series of powerful approximation methods for Relative-Entropy Conic constraints which were suggested in this paper within CVXPY
- When finished, would be one of the first (efficient) implementations of these constraints within a mainstream convex modelling language

LogGENE: A smooth alternative to the check loss **AUG 2021 — FEB 2022**
BITS Pilani *Goa Campus, Dept. of CS*

Code, Pre-Print, Currently under review in IEEE TNNLS
Under Prof. Snehanshu Saha & Mr. Soma S. Dhavala

- Developed a novel Quantile Regression based framework around our proposed loss function in the Deep Learning setting
- Offered applications to higher-order methods leveraging the above theoretical framework, suggesting a possible interplay between quantiles and higher-order analysis in neural networks
- Rigorously adapted our proposed regression loss to the binary classification setting, and saw favourable results against baseline (binary) Cross-Entropy.
- Used the Gene Expression problem as as test-bed for validating our theory
- End-to-end planned and wrote the code for most of the experiments that we conducted (used PyTorch as our major driver), and contributed significantly to the theoretical framework and proofs.

NLP intern @ Swecha **MAY 2021 — JULY 2021**
Swecha *Gachibowli, Telangana*
Code

- Worked on a Fake News Detection system for the Indian Context
- Partially constructed a fake news dataset for the same by scraping large volumes of data from relevantly tagged websites
- Dealt with Apache Solr and used it's inverted index search for creating a fast search solution for the system.
- Came up with and implemented a heuristic-based NLP system for fake news detection.