

Aryaman Jeendgar

(+91) 8619554470
Hyderabad, Telangana

Graduate Technical Intern at Intel Labs
and Student Developer at CVXPY

jeendgararyaman@gmail.com

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/INTERNS

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

Manager: *Nilesh Jain* and collaboration with *Sameh Gabriel*

- 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 ICML'23
Under Prof. Snehanishu 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 a 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

- Came up with and implemented a heuristic-based NLP system for fake news detection.
- Partially constructed a fake news dataset for the same by scraping large volumes of data from relevantly tagged websites

REFERENCES:

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| <ul style="list-style-type: none">Riley J. Murray, <i>Berkeley</i>
WebPage: https://rileymurray.wordpress.com/
Contact: rjmurray@berkeley.edu | <ul style="list-style-type: none">Steven Diamond, <i>Gridmatic</i>
WebPage: https://stevendiamond.me/
Contact: diamond@cs.stanford.edu |
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