




Vihari Piratla

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Research Focus

I am interested in studying the performance of Machine Learning systems beyond well-represented training distributions. Towards this objective, I work on ML algorithms' generalization, evaluation, and adaptation aspects on unseen distributions.

Research Areas: Reliable, robust and secure ML systems, Trustworthy ML or Responsible AI

Education

- **Indian Institute of Technology, Bombay** June 2017 - July 2022
M.Tech. + Ph.D. Dual Degree, Department of Computer Science GPA: 9.75/10
Advisors: [Prof. Sunita Sarawagi](#) and [Prof. Soumen Chakrabarti](#)
☆ Google PhD Fellow ☆ Department rank one in the M.Tech. class of >100 students.
- **Indian Institute of Technology, Mandi** 2010 - 2014
B.Tech. Department of Computer Science

Professional Experience

- Research Associate Aug'22 - Present
Mentor: [Dr Adrian Weller](#) [CBL, University of Cambridge](#)
Trustworthy Machine Learning.
☆ Bye-fellow, [Churchill College](#) Feb'23-Present
☆ Postdoctoral Research Associate, [Trinity Hall College](#) Sept'22-Jan'23
- Research Intern Aug'19 - Nov '19
Mentor: [Dr. Praneeth Netrapalli](#) [Microsoft Research, India](#)
Worked on algorithms that enable efficient transfer and generalization to new domains.
☆ Work done during the internship was published at ICML 2020.
- Project Staff Oct'16 - July'17
Mentor: [Prof. Sunita Sarawagi](#) [IIT Bombay](#)
Contributed features to a complaint management system, such as text or image based automatic complaint categorization, and deduplication.
- Research Member Staff June'14 - Feb'16
Mentor: [Dr. Sudheendra Hangal](#) [Amuse Labs](#)
Worked on a digital archival project called [ePADD](#) and developed the following features. (1) A fine-grained entity recognizer that is robust to domain shifts, which is built using distantly supervised binomial mixture models. (2) Cross document co-referencing and entity linking using context cues.
- Research Intern June'13 - Aug'13
Mentor: [Navneeth S](#) [GE Global Research](#)
Implemented software for distortion correction and 3D registration of Ultrasound images.

Scholastic Achievements

- One of the sixteen global recipients of [Google PhD fellowship](#) in Machine Learning in 2020.
- Selected to receive Prime Minister's Fellowship for Doctoral Research, 2021 (declined).
- Google, Microsoft travel grants to present at ACL 2019; ICLR 2018 Travel Award.
- Department Rank one among 100 students in the M.Tech. computer science batch of 2019.
- Represented IIT Mandi, as a member of a team, in ACM International Collegiate Programming Contest 2012-13 Kharagpur and 2013-14 Kanpur regional.

- Qualified for the Indian National Mathematical Olympiad after clearing Regional Mathematical Olympiad'09 with a state rank of 26.

Publications

i In the field of Machine Learning, conference publications are peer-reviewed and are reputed equally as journal publications. Acceptance rate at a conference is usually between 20-30%. Workshop publications are also peer-reviewed, but have higher acceptance rates.

Conference

1. [Focus on the Common Good: Group Distributional Robustness Follows](#)
V Piratla, P Netrapalli, S Sarawagi
International Conference on Learning Representations (ICLR) 2022.
2. [Active Assessment of Prediction Services as Accuracy Surface Over Attribute Combinations](#)
V Piratla, S Chakrabarty, S Sarawagi
Neural Information Processing Systems (NeurIPS) 2021.
☆ Recognised as an [AI Game Changer](#) by [NASSCOM](#) in ML Fundamentals category.
3. [Training for the Future: A Simple Gradient Interpolation Loss to Generalize Along Time](#)
A Nasery, S Thakur, **V Piratla**, A De, S Sarawagi
Neural Information Processing Systems (NeurIPS) 2021.
4. [NLP Service APIs and Models for Efficient Registration of New Clients](#)
S Shah, **V Piratla**, S Sarawagi, S Chakrabarti
Findings at Empirical Methods in Natural Language Processing (EMNLP), 2020.
5. [Efficient Domain Generalization via Common-Specific Low-Rank Decomposition](#)
V Piratla, P Netrapalli, S Sarawagi
International Conference on Machine Learning (ICML) 2020.
6. [Topic Sensitive Attention on Generic Corpora Corrects Sense Bias in Pretrained Embeddings](#)
V Piratla, S Sarawagi, S Chakrabarti
Annual Meeting of the Association for Computational Linguistics (ACL) 2019 (Oral).
7. [Parallel iterative edit models for local sequence transduction](#)
A Awasthi, S Sarawagi, R Goyal, S Ghosh, **V Piratla**
Empirical Methods in Natural Language Processing (EMNLP), 2019.
8. [Generalizing Across Domains via Cross-Gradient Training](#)
S Shankar*, **V Piratla***, S Chakrabarti, S Chaudhuri, P Jyothi, S Sarawagi [* Shared first author]
International Conference on Learning Representations (ICLR) 2018.

Workshop

9. [Untapped Potential of Data Augmentation: A Domain Generalization Viewpoint](#)
V Piratla, S Shankar
ICML 2020 Workshop on Uncertainty & Robustness in Deep Learning.
10. [Historical Research Using Email Archives](#)
S Hangal, **V Piratla**, C Manovit, P Chan, M Lam, G Edwards
Conference on Human Factors in Computing Systems 2015 Case Studies.

Preprints

11. [Web-based Elicitation of Human Perception on mixup Data](#)
K Collins, U Bhatt, W Liu, **V Piratla**, B Love, A Weller
12. [Implicit Training of Energy Model for Structure Prediction](#)
S Shankar, **V Piratla**

Talks

- Research Challenges when scaling to millions of users through Prediction Service APIs [\[talk\]](#)[\[slides\]](#)
Presented at [Trust ML Rising Star Spotlights Series](#)
- Efficient Domain Generalization via Common-Specific Low-Rank Decomposition [\[talk\]](#)[\[slides\]](#)
Presented at ICML 2020 Conference
- Topic Sensitive Attention on Generic Corpora Corrects Sense Bias in Pretrained Embeddings. [\[talk\]](#)[\[slides\]](#)
Presented at ACL, Florence

Development Experience

[ePADD: Digital Archival Project](#)
Stanford University Libraries

Aug'14 – Feb'16

- ePADD is an open-source project to develop tools for collecting and processing of digital archives.
 - Contributed tens of thousands of lines of code for smooth functioning of the application across various operating systems, browsers, compute hardware, and for processing archives that are several gigabytes large.
- ☆ The features I contributed continue to be a big part of the project to this day: [browse here](#).

Academic Service/Experience

- **Teaching Assistant:**
 - Advanced Machine Learning
 - Digital Image Processing
 - Organization of Web Information
 - Data Interpretation and Analysis
 - Learning with Graphs
 - Parallel Programming Paradigms
- **Student Volunteer:** NeurIPS 2021, ICML 2020, ACL 2019.
- **Reviewer:** ICLR 2022, NeurIPS 2022, 2021, ICML 2021, AAAI 2020, IEEE Transactions on Multimedia.

Technical Skills

- **Programming & Scripting:** Java, Python, C, Shell Scripting, PERL
- **Technologies :** Spring, HTML, CSS, JavaScript, Lucene
- **Programming Libraries:** PyTorch, GPyTorch, Tensorflow, NumPy
- **Languages:** English, Telugu, Hindi

Other Activities

- At IIT Bombay's PG sports events conducted in 2018, I won (or was part of a team that won) **Gold** in the 400m relay, **Silver** in 100m relay, **Bronze** in Volleyball, and finished fourth in the Long Jump.
- I finished 6th in the 2017 and 2018 PG sports 5km running event.
- Trekker with medium level expertise.

References

Prof Sunita Sarawagi	Advisor	sunita@cse.iitb.ac.in	Professor, IIT Bombay
Prof Soumen Chakrabarti	Co-Advisor	soumen@cse.iitb.ac.in	Professor, IIT Bombay
Dr Praneeth Netrapalli	Collaborator	pnetrapalli@google.com	Research Scientist, Google Research