

Harshvardhan Srivastava

✉ srivastavahv@gmail.com | 🏠 hvarS.github.io | 📷 hvarS | 📺 HarshvardhanSrivastava | 🎓 Harshvardhan Srivastava

Education

Indian Institute of Technology , Kharagpur

B.Tech with Major in Electrical Engineering and Minor in Computer Science

July 2017 – May 2021

CGPA 9.03/10.00

Publications

M-MELD: A Multilingual Multi-Party Dataset for Emotion Recognition in Conversations

[Preprint]

Harshvardhan Srivastava et al.

Under Review* Submitted to ICASSP 2023

Early Prediction of Eating Disorder, Depression and Pathological Gambling Over Social Media

[Code] [PDF]

Harshvardhan Srivastava, Sruthi S, Lijin NS, Tanmay Basu

13th Conference and Labs of the Evaluation Forum (CLEF) 2022

Leveraging Graph Network for Misogynistic Meme Detection

[Code] [PDF]

Harshvardhan Srivastava

In Proceedings of the 16th International Workshop on Semantic Evaluation (SemEval) @ NAACL 2022

Zero Shot Crosslingual Eye-Tracking Data Prediction using Multilingual Transformer Models

[Code] [PDF]

Harshvardhan Srivastava

In Proceedings of Cognitive Modeling and Computational Linguistics (CMCL) @ ACL 2022

Causality Detection using Sentence Embeddings in Financial Reports

[Code] [PDF]

Arka Mitra*, Harshvardhan Srivastava*, Yugam Tiwari*

(* - Equal contribution)

In Proceedings of the 1st Workshop Financial Narrative Processing and MultiLing Financial Summarisation (FNP) @ COLING 2020

Speech Emotion Recognition using Multi-task learning and a Multimodal Dynamic Fusion network

[Preprint]

Sreyan Ghosh, S Rameswaran, Harshvardhan Srivastava

Research Experience

DAIR Lab

Supervised by [Prof. Mausam](#) and [Prof. Soumen Chakrabarti](#)

August 2022 - Present

Research Developer, IIT Delhi

- Researching on creating a Conversational Framework for Recommendations on Movies, Food, Music and POI
- Creating a unified framework for self-supervised learning methods for medical image analysis in clinical histopathology

Graph Enhanced Zero Shot Learning

Supervised by [Prof. Aruna Tiwari](#)

Sept 2021 - Feb 2022

Research Collaborator, IIT Indore

- Working on creating graph enabled visual networks for object classification task on datasets NUS-Wide,MS-COCO
- Improving generalised and conventional zero shot performance performance of dataset agnostic convolutional networks
- Improved the SOTA on two datasets using a shallower network as compared to best performing models

Medical Text Mining for Early Detection

Supervised by [Prof. Tanmay Basu](#)

Feb 2022 - Sept 2022

Research Collaborator, IISER Bhopal

- Created a framework for detecting early signs of eating disorder, depression and pathological gambling over social media
- Published a paper for the work and got top scores in terms of some of the evaluation techniques like speed, F1, precision

Dynamic and Robust Server Allocation [Report]

Supervised by [Prof. Parimal Parag](#) and [Prof. Vikram Srinivasan](#)

May 2019 - July 2019

Summer Research Fellow, IISc Bengaluru

- Worked on a multi-node multi partition Kafka Cluster to store the data from live streams from Twitter real time streams
- Collected , analysed native Kafka performance metrics with custom metrics devised to verify the robustness of cluster
- Worked on tweaking parameters to improve Kafka scalability and the information throughput management

Autonomous Ground Vehicle Research Group [Link]

Supervised by [Prof. Debashish Chakravarty](#)

May 2018 - Dec 2020

Undergraduate Researcher, IIT Kharagpur

- Responsible for analyzing and enhancing the stability , path prediction and lane detection
- Model predictive control for an autonomous vehicle and detection of rollover of a vehicle
- Worked on Road Segmentation using unsupervised K-Means Clustering and Mean Shift algorithm
- Designed mounts for various sensors to be integrated in Mahindra E2O for Mahindra Driverless Car Challenge

Work Experience

Member Technical Staff

July 2021 - August 2022

Oracle Corporation

- Working on creating robust and efficient automation frameworks for easy loading of transactional data in the data pipelines
- Designing Backend Services for CX, HCM and OCI for efficient handling of data at scale in Fusion Analytics Warehouse

Machine Learning Intern

April 2021 - July 2021

[Certificate]

SearchUnify @ Grazitti Interactive

- Developed NLP engine for Topic-Modelling and Question-Answering of sentence, paragraph, and document level texts
- Designed custom weighted word vectors to include context specific words using FastText and GloVe embeddings.
- Deployed testing of the model on a live project and created REST APIs for the above functionalities.
- Implemented efficient query searching to get the fastest response from REST and improved it from 5 seconds to 0.4 seconds.

Visual Intelligence Intern

May 2020 - July 2020

[Certificate]

Samsung R&D Institute, Bengaluru

• Burst Image Denoising

- Refined an algorithm for deep burst denoising of image dataset and by extending the CNN with parallel recurrent networks that integrate information of all frames in the burst set. Used Attention enhanced Kernel Prediction networks.
- Evaluated and compared results with SFD (PSNR = 32.78) and MFD (PSNR = 34.32) to process temporal data with RNN.
- Stabilized the image dataset using Lucas Kanade Optical Flow method to find correspondence with the successive frames.

• Super Low Light Video Denoising

- Used images in the bayer domain instead of RGB to enhance the quality of the output video
- Modified the loss function to enable temporal consistency in the output and to annihilate frama deflickering
- Achieved SOTA with PSNR (Peak Signal to Noise Ratio) matching 29.8 and SSIM (Structural Similarity Index) to be 0.87.

Selected Projects

Lexical Complexity Prediction using Multi-Head Attention Enhanced BiLSTMs [PDF] [Code]

Jan 2021 - April 2021

Supervised by **Prof. Pawan Goyal**

Task 1, SemEval 2021

- Designed a novel architecture to tackle single and multi word complexity prediction . Predicting lexical complexity accurately can enable a system to better guide a user to an appropriate text, or tailor a text to their needs
- Extracted many features such as POS tag, no. of hypernyms, hyponyms in order to treat multi word tokens as compositional
- Obtained Pearson scores of 0.742 on single token performance and scores of 0.832 for multi token performance which fetched us 14th position from a total of 186 teams worldwide.

Study of privacy hazards in user reviews on Amazon Marketplace [Code]

July 2021 - Sept 2021

Supervised by **Prof. Mainack Mondal**

Research Assistant, IIT Kharagpur

• PII Detection and qualitative analysis of Amazon Reviews

- Processed >100GB data of user reviews from amazon.com & detected critical PII revelations in 14k cases
- Analyzed the reviews to obtain qualitative code and then, examined a random set of 200 reviews with PII revelations, assigned qualitative codes to reviews & calculated Krippendorff's alpha (for 3 raters)

• Re-identification Attack and Privacy Sensitive Information (PSI) Detection

- Formulated a cross-platform re-identification attack using data obtained from Amazon reviews
- Defined PSI for Amazon reviews & worked on PSI detection from the reviews of products of various categories

Operationalising Individual Fairness with Pairwise Fair Representations [Presentation] [Code]

Jan 2020 - April 2020

Supervised by **Prof. Animesh Mukherjee**

AI & Ethics IIT Kharagpur

- Designed a fairness graph to address unfairness in the outcome of decisions involving individuals like race, gender etc
- Evaluated the influence of outcomes of individuals with metrics like Consistency , and group effects like Disparate mistreatment and Disparate Impact to quantify the fairness level in the surveying metric and equality measures in community
- Obtained accuracy scores of 69.56% improvement over original 66.10% and reduced the positive prediction rate

Honors & Awards

IGVC, 2019

Runner Up in 27th Intelligent Ground Vehicle Competition AutoNav Challenge

HackerCup, 2020

Ranked amongst the top 1500 internationally in HackerCup Round 2 by Facebook

SRFP Recipient, 2019

Selected for the prestigious SRFP conducted by the Indian Academy of Sciences

Academic Excellence, 2018

Amongst top 5% of undergraduate students admitted batch of 2017 at IITKGP

KVPY Scholar, 2016

Selected for the prestigious KVPY fellowship offered by IISc, Bengaluru

INMO, 2016

Selected amongst 900 students nationwide

State Representative, NSSC 2014

Represented my home state of MP at National Children's Science Congress