Varun Srivastava

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Education

2019–2021 **Stanford University**,
Electrical Engineering, MS.
GPA – 4.060/4.0

2015–2019 **Indian Institute of Technology - Delhi**,
Electrical Engineering, B.Tech.
GPA – 9.38/10

Experience

May 2018– July 2018 **Research Intern**, Adobe Systems (Big Data and Experience Lab), Bangalore,
Across Journey Customer Experience Measurement.
- Implemented Inverse Reinforcement Algorithms to model Customer Experience in an online setting.
- Proposed a new metric incorporating aspects of Consumer Psychology and Learning to measure Experience.
- Worked on distributed computing framework Apache Spark to process more than 2 TB of clickstream data.

Patent is internally approved and filed at United States Patent and Trademark Office.

Projects

Sep, 2018– Jan 2019 **Adversarial Approximate Inference for Speech to Electroglottograph Conversion**,
Prof. Prathosh AP, Dept. of EE, IIT Delhi.
- Optimized the Speech to Laryngograph encoder using adversarial training for the network.
- Created a cosine based loss function for enforcing amplitude invariance between ground truth and output.
- Used a variational inference approach for learning optimal representations for the speech signal.

Accepted at *IEEE Transactions on Audio, Speech and Language Processing* - **[Paper]**
Patent filed at Indian Patent Office (Reference: #201911036593)

March 2018– June 2018 **Detection of Glottal Closure Instants using CNNs**, *Prof. Prathosh AP, Dept. of EE, IIT Delhi.*
- Devised state of the art deep dilated CNN to detect and locate GCIs from raw speech.
- Created a robust Weighted Histogram based Clustering Algorithm for **time series clustering**.
- Beat State of the Art method with Lowest Variance in Localisation Error on noisy speech.

Published and Presented at *INTERSPEECH* 2019 - **[Paper]**.

May 2017– Dec 2017 **Analysis and Optimization of Text Generation Models**, *Prof. Jayadeva, Dept. of EE, IIT Delhi.*
- Designed a probabilistic discriminative model using Brown Corpus and WordNet to perform text prediction.
- Implemented a LSTM in Chainer (dynamic computational graph framework) for language modelling.
- Improved word perplexity by building a factored language model incorporating both words and parts of speech.

Awarded *Summer Undergraduate Research Award* for successful completion

Aug, 2018– Mar, 2019 **Mode matching in GANs through latent space learning and inversion**, *Prof. Prathosh AP, Dept. of EE, IIT Delhi.*
- Imposition of modal properties of the latent space the generated space using two-stage latent inversion.
- Learnt the mode priors of the latent distribution to follow true data distribution using sparse-supervision.

Manuscript preprint available at **[Paper]**

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Achievements

2018 **Qualcomm Research Innovation Fellowship**, *With a financial reward of Rs 10,00,000.*

2019 **Narotam Sekhsaria Scholarship**, *Scholarship-loan worth Rs 15,00,000 for post-graduate education.*

2017 **Summer Undergraduate Research Award**, *Awarded by Industrial Research and Development, IITD.*

2020, 2018 **Teaching Assistant**, *Selected for EE102A (Signal Processing) and ELL205 (Signals and Systems).*

Skills

Languages Python(PyTorch, Tensorflow), C/C++, SQL, Apache Spark, MATLAB, Java, HTML/CSS, JavaScript
Hardware Arduino Uno, Raspberry Pi

Relevant Courses

Classroom Convex Optimization., Linear Dynamical Systems, Deep Generative Models., Probability & Stochastic Proc., Econometric Methods, Deep Learning, AI, ML, Signal Processing, Operating Systems