

Viral Chitlangia

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🔗 Viral Chitlangia

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Education

BS	Indian Institute of Technology Kanpur , Statistics & Data Science	2022 - 2026
	<ul style="list-style-type: none">• CPI : 9.03/10.0• Honours Track Student• Minor : Dept. of Computer Science & Engineering - Machine Learning & Applications	
XII	Delhi Public School Bangalore East	2022
	<ul style="list-style-type: none">• Grade : 96%	

Scholastic Achievements

- **Academic Excellence Award, IIT Kanpur** - For exceptional performance in Academic Session 2022-23.
- Was part of the team that represented **IIT Kanpur** in **Mimamsa 2024** hosted by **IISER Pune**, and secured **4th place** among more than **1500** participating teams.
- Achieved All India Rank **646** in **JEE-ADVANCED 2022**
- Achieved All India Rank **1030** in **JEE-MAINS 2022**

Publications & Pre Prints

- Viral Chitlangia, Mosuk Chow, Sharmishta Mitra. "Swap Regression Methodology for Predicting Relationship with Historical Bivariate Data." *arXiv preprint arXiv:2508.15479* [🔗](#), August 2025. Aug 2025

Manuscripts in Preparation

- Viral Chitlangia, Suncica Hadzidedic, Miaoja Fu. "Digital interventions for loneliness: Understanding design elements and features from user reviews and discussions on social media" *Manuscript in preparation* for submission to ICT4AWE 2026.

Projects

SWAP Regression Prof. Sharmishta Mitra IIT Kanpur	Nov '23 - Aug '25
<ul style="list-style-type: none">• Analyzed the paper written by Mosuk Chow, Bing Li and Jackie Q. Xue, on ON REGRESSION FOR SAMPLES WITH ALTERNATING PREDICTORS AND ITS APPLICATION TO PSYCHROMETRIC CHARTS 🔗 and developed models with alternating predictors on Bivariate Data using the method of SWAP Regression.• Defined a new loss function for the Swap Regression model.• Implemented ALT-OPT to solve the loss function.• Implemented the model to test on real data as US Public Debt and GDP.• Applied the model to predict the causality direction of US Public Debt and GDP without prior knowledge.	
Digital Intervention for Loneliness Prof. Suncica Hadzidedic Durham University	May '24 - Ongoing
<ul style="list-style-type: none">• Explored Reddit and Google to find relevant subreddits and apps which target loneliness.• Scraped Reddit, Google Play, Apple Play and A Lonely Life(a loneliness forum), using relevant Python libraries, and Rvest(R), to collect text data on loneliness.	

- Used **Topic Modelling** on the data collected to **cluster** the data into relevant topics, to realise what people are talking about online, to find out which areas of apps people would like to see an improvement in.

Deep Generative Models for Spatial-Temporal Data | Prof. Swapnil Mishra | NUS

May '25 - Jul '25

- Implementing and analyzing the paper on [AggVAE](#) written by **Swapnil Mishra et al.**
- Working on using the technique to incorporate **AggVAE** with **Population Disaggregation** techniques to get good predictions using Low Resolutions data points.
- Implemented the model on **US Covid Data**, segregated by 9 Regions of the country.

A Review of Enveloping Techniques in Bayesian Statistics | Prof. Dootika Vats | IIT Kanpur

Aug '25 - Nov '25

- Understood the paper by **Apartim Shukla, Dootika Vats** and **Eric C. Chi** on [MCMC Importance Sampling via Moreau-Yosida Envelopes](#).
- Read about various enveloping techniques in **optimization** and understood the properties of various envelopes, and their usability in MCMC sampling.
- Implemented envelopes, such as Moreau Yoshida and Bregman Moreau Envelopes, for Constraint Distributions.
- Performed Proximal Sampling, using enveloping technique, for distributions with high condition number.

Bayesian Bivariate Load Sharing Model | Prof. Debasis Kundu | IIT Kanpur

Jan '26 - Ongoing

- Understood and implemented the paper, [A Bivariate Load Sharing Model](#) by Debasis Kundu.
- Incorporating a Bayesian structure to the existing model.
- Exploring posterior inference using MCMC-based methods and Gamma-approximate sampling.

MCMC Machine Unlearning | Course Project | Prof. Dootika Vats | IIT Kanpur

Jan '25 - Apr '25

- Understood and Implemented the paper on [Markov chain monte carlo-based machine unlearning: Unlearning what needs to be forgotten](#) by QP Nguyen et al.
- Implemented a novel algorithm for the purpose of Machine Unlearning Sampling by MCMC using the idea of **Newton's Method Update** proposed in [Certified data removal from machine learning models](#) by C Guo Et al.
- Compared the algorithm with other prominent MCMC sampling algorithms with **Logistic** and **Negative Binomial** Regression data.

Other Experiences

Teaching Assistant | MTH 208 | Prof. Dootika Vats | IIT Kanpur

Aug '24 - Nov'24

- Assisted Professor Dootika Vats in teaching the Undergraduate and Postgraduate students enrolled in MTH 208 the basics of the R language.
- Got a hands on experience of teaching a class of enthusiastic students.

Technical Skills

Languages: Python, R, C, C++, \LaTeX

Softwares and Libraries: Matplotlib, Seaborn, Numpy, Pandas, Tensorflow, Librosa, Numpyro, Rvest, Tidyverse, GG-Plot2, Quarto, Shiny App

Relevant Courses

An Introduction to Bayesian Analysis* Probability Theory Introduction to Machine Learning* Data Structures & Algorithms Elementary Stochastic Processes - I* Linear Regression & ANOVA* Multivariate Analysis	Markov Chain Monte Carlo* Time Series Analysis Probabilistic Machine Learning Theory of Statistics* Elementary Stochastic Processes - II Techniques in AI & Data Mining* Analysis-I*
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* : Excellent Performance

Positions of Responsibilities

Coordinator, Stamatics Club

Oct '24 - Aug '25

Executive, Stamatics Club

Nov '23 - Oct '24