• Opinion Dynamics in Social Networks

(Aug, 2020-Ongoing)

• Studying Convergence Analysis of Opinion Dynamics in Social Networks using Markovian models. • Formulating concentration inequalities to derive insights about opinion differences in a network.

• Deep Learning

• Implemented MLP, CNN, RNN architectures on MNIST and analysed adversarial attacks on them.

(Aug. 2019-Aug,2020)

Performed comparative analysis of Linear, Convolutional Autoencoder and PCA.

• • Presented and implemented NeurIPS Research Paper on Bayesian Compression of CNNs.

• Estimation Theory

(Jan, 2020-May,2020)

• Estimated the most likely Markov Random Field of the ALARM dataset using Chow-Liu's Algorithm.

• Implemented and analysed Expectation Maximization, Hierarchical Bayes and MC Bayes estimators.

• Derivative Pricing

• Calibrated Binomial term structure model (BDT) based on market prices of ZCBs using python. • Priced options, futures, swaptions, forward, default-able bonds

using the calibrated model.

• Trading Strategies

• Backtested PEAD, Piotroski F-score, Pairs trading strategies using market-neutral portfolios.

(Jul, 2020)

(Jul, 2019)

• Analyzed the returns using alpha, beta, Sharpe ratio and observed the importance of hedging.