# CoCo Seminar Series
# Fall 2023

## [Extra CoCo Seminar]
## Prediction in the Stock Market Using Deep Learning

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**Tuesday October 31, 2023**   **12:00-1:00pm EDT**
**Hybrid (EB-T1 & Zoom; meeting link available on**
**http://coco.binghamton.edu/)**

Stock market prediction is a long-standing issue in finance and machine learning research. When analyzing stock market movements using statistical methods and machine learning, the general idea is to model distribution using time series data such as the stock's closing price, volume traded, technical indicators, etc. These strategies are designed to derive valuable information or features from the past and current market scenarios that eventually contribute to better forecasting of future trends. Considering the unpredictable behavior of the market due to human involvement and how sentiment can drive a person's decision-making process, we need more robust algorithms and unique approaches to this task. This talk will discuss a deep-learning approach to model Indian stocks based on a Convolutional Neural Network (CNN), considering their price movements and market indicators. The talk will throw lights on: (1) The spatial mapping scheme that transforms time series data into a spatial image to enable processing through CNN. (2) A unique CNN architecture empowered by a stack of multi-sized feature maps for stock price movement prediction capable of learning from day-to-day, short-term, and long-term trends that persist in the movement of a given stock. (3) A thorough experimentation involving five stocks from the National Stock Exchange, India, over a period of approximately 11 years to demonstrate the effectiveness of the approach.

Dr. Priyank Thakkar holds a Ph.D. from Nirma University, India, and currently serves as an Associate Professor in the Computer Science and Engineering Department at the Institute of Technology, Nirma University. In addition to his teaching role, he serves as the coordinator of the Centre of Excellence in Data Science at Nirma University, showcasing his expertise in the field. With over 23 years of valuable teaching experience, Dr. Thakkar has a strong academic background. He has successfully completed two funded research projects in collaboration with the Space Application Centre – Indian Space Research Organization, highlighting his research acumen. His contributions to academia are evident through the publication of over 30 research papers in esteemed international journals and conferences. Dr. Thakkar is actively mentoring 5 Ph.D. Scholars, fostering the next generation of researchers in his areas of expertise, which include Data and Web Mining, Machine Learning, Soft Computing, Deep Learning, and their various practical applications. Beyond his research and teaching commitments, Dr. Thakkar has also contributed as a program committee member at numerous international conferences. His dedication to scholarly pursuits extends to serving as a reviewer for several esteemed international journals, where he plays a critical role in shaping the quality of research in his field.

For more information, contact Hiroki Sayama (sayama@binghamton.edu).          http://coco.binghamton.edu/