Aniket Niranjan Mishra

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Aniket Niranjan Mishra
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Academic Background

2017-2022	Dual Degree in **Metallurgical and Materials Engineering** with specialization in **Financial Engineering**	
	Department Rank 3 till 5th semester	**GPA:** 9.03/10.0 (* Ongoing)
(Expected)	**Indian Institute of Technology, Kharagpur**	
2015-2017	All India Senior School Certificate Examination, **CBSE**	**Percentage:** 96.8%
	S.R. Public Senior Secondary School, Kota	
2015	All India Secondary School Examination, **CBSE**	**CGPA:** 10/10
	Kendriya Vidyalaya (AFS), Utarlai	

Technical Skills

Programming Languages	Python, R, C, C++
Libraries / Frameworks	TensorFlow, scikit-learn, OpenCV, Numpy, pandas, Matplotlib, Seaborn, Cufflinks, SciPy, Plotly
Systems / Platforms	Git, Windows, Linux
Softwares	MATLAB, Bloomberg database, Anaconda, ProwessIQ, GNU-Octave, Simulink, Origin, MS-Office, Jupyter Notebook, LaTex, SolidWorks, Minitab

Internships

Dec 19 – Jan 19 **Research intern**

Centre for Analytical Finance, Indian School of Business (Hyderabad)

- Worked towards developing, modifying and implementing a PAIRS trading algorithm for the Indian stock market at the NSE Trading Lab, Centre for Analytical Finance, headed by Prof. Prasanna Tantri
- Modified the Pairs strategy on a 1 year rolling window with **12% CAGR** and **0.71** overall Sharpe ratio in Python
- Worked towards Implementing PEAD (Post Earnings Announcement Drift) using SUE as a metric of decile formation in Nifty 50 universe and back tested if it can still produce returns in Indian Markets
- Researched the intricacies involved in various trading strategies such as Piotroski's f-score, fama french four factor model, g-score, betting against beta and momentum and momentum crashes
- Performed unsupervised K-Prototypes clustering on loan application data and developed a hypothesis on how to model network contagion within clusters
- Performed sentiment analysis on Indian financial news using nltk's vader library and analysed its applicability on analyst's EPS predictions
- Performed textual analysis on US firm's 10-Q filings using Loughran McDonald financial dictionary in Python

Research Experience

Mar 19 – Present **Prediction of high temperature flow behaviour of Ti alloys as a function of chemical composition and microstructure employing feed-forward artificial neural network**

Dr. Sumantra Mandal, Associate Professor, MME, IIT Kharagpur

- Mined data related to high temperature flow behaviour of titanium alloys and modelled an artificial neural network in MATLAB and PYTHON
- Developed a robust feed forward ANN model employing back propagation with bayesian regularisation that efficiently predicts the high temperature flow stress of Ti alloys as a function of chemical composition, microstructure and various processing parameters (temperature, stain, strain rate)
- Achieved **94.7%** accuracy on the test set, scatter index value of **0.106** and regression coefficient of **0.99104**
- Assessed the predictability of ANN model employing various statistical parameters like (Root mean square error, Scatter index, Adjusted R square)
- Assessed the relative importance of input variables using Multiple linear regression and Most squares algorithm
- The developed model can be used to design new Ti alloys to achieve desired high temperature flow behaviour

July 19 – Present **Modeling Integration of Emerging Market Indices with Machine Learning Methods**

Dr. Abhijeet Chandra, Assistant Professor, VGSOM, IIT Kharagpur

- Aimed at forecasting long-duration financial time series of global indices
- Under study financial indicators include market indices of emerging economies along with gold and crude oil prices
- Proposes to implement statistical, ML and mixed methods to estimate price indices of 10 major indicators
- Aimed at capturing uncertainties/shocks in global markets through regime switching techniques and decomposition-based reinforcement learning methods
- Algorithms to be fine-tuned by incorporating extreme events and fat-tailed properties

Achievements

- **National Sustainability Case Challenge, 2019**
  Secured second rank among 500 participant teams from all over India, worked on a case analysis for developing IoT based solutions for Indian smart cities network
- **Enviro Case Study, GREAT STEP 2018**
  Secured second position among 50 participating teams, proposed an industry implementable methodology for mitigating the levels of carcinogenic hexavalent chromium content in Chromite mines discharge in Sukhinda Mines, Odisha
- **Gold Medal, Technology General Championship, 2018**
  Secured gold medal in Sci-Tech Quiz at institute level as part of Technology General Championship, 2018

Interests

Machine Learning, Data Analytics, Analytical Finance, Algorithmic trading

Projects/Industrial Experience

- **Term project, Reliance Communications Ltd. bankruptcy analysis**
  Analyzed the balance sheet & cash flows of Reliance Communications Limited and identified reasons behind its near bankruptcy. Extracted data from Bloomberg database & performed ratio analysis to pinpoint causes
- **Mineral Development Awareness Programme 2019, Society of Geoscientists and Allied Technologists (SGAT)**
  Ferro-manganese & sponge iron plant visit, Quiz competition among Metallurgy & Mining students of Indian colleges
- **Indian Case Challenge 2019, Business Club, IIT Kharagpur**
  Analyzed IKEA's entry into Indian markets, suggested location of its first store using break even forecasting. Studied its market competition and suggested measures to capture market share and maintain profitability

Theoretical Coursework

*** Currently Studying**

- Programming and Data Structures
- Probability and Stochastic Processes
- Basic Electronics
- Data Structure and Algorithm*
- Metallurgical Thermodynamics
- English for Communication
- Deformation Behaviour of Materials
- Data Analytics
- Partial Differential Equations
- Regression and Time series model
- Corporate Finance & Accounting
- Phase transformation & heat treatment

Laboratory Experience

*** Currently Studying**

- Programming and Data Structures Lab
- Phase transformation & Heat treatment Lab
- Metallurgical thermodynamics & Kinetics Lab
- Electrical Technology Lab
- Mechanical Testing and Working Lab
- Basic Electronics Lab

Certifications & MOOC Courses

*** Currently Studying**

- Lean Six Sigma Green Belt - KPMG India
- Advanced Trading Algorithms - Coursera
- Neural Networks & Deep learning - Coursera
- Structuring ML projects - Coursera
- Sequences, Time Series and Prediction - Coursera
- Convolutional Neural Networks* - Coursera
- Introduction to Financial Markets - Coursera
- Time valuation of Money - Coursera
- Bloomberg Market Concepts - Bloomberg LLP
- Hyperparameter tuning, Regularization & Optim.- Coursera

Extra-curricular involvements

- **Secretary, Technology Affairs** Rajendra Prasad Hall, IIT Kharagpur
  Responsible for conducting Technology General Championship events at hall level, involving 800+ students Participated in Data Analytics and Case study events
- **Associate** Students' Alumni Cell
  Part of a team managing and organizing 15th Annual Alumni Meet, 2018
- **Junior Executive Member** Gopali Youth Welfare Society
  Part of the design team, worked on Adobe Photoshop for making videos and posters for events Non Governmental Organization works for providing affordable education to children of nearby villages
- **Mentor** Student's Welfare Group
  Mentoring first year students under the guidance of DEAN (Student Affairs), providing career guidance and conducting counselling sessions
- **B-certificate** National Cadet Corps
  Awarded NCC B Certificate under EME (Electronics and Mechanical Engineers) division