SOUMYADEEP ROY

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Area of Interests

Quant Finance, Data science, Technical product management(AI, Fintech, Crypto), DeFi, Python.

Education

Indian Institute of Technology (IIT) Bombay   *Mumbai, India*

Bachelor and Masters of Technology/Engineering - Dual/integrated degree   *Jul'17-Jun'22*

• **Master's Thesis:** Python based Multiobjective EV Battery design variables optimization- Designed Python based ecosystem for multiphysics based optimization on Li-ion battery design variables with single and multi-objective functions designing battery parameters such as electrode properties like Porosity, thickness.

Professional Experiences in Crypto space

Barclays India | Trading-system- Summer Research Associate   *Apr '20 – Aug '20*

*Worked directly under the **Vice-president of Global markets of Barclays**, India on building a visualization dashboard based on Ehlers indicators and implemented trading strategies integrating with dashboard only with Ehlers cycle indicators*

• Built an entire trading platform of several tools on **cycle analytics** for financial trading using Python libraries and implemented various mathematical models for modifying **Ehlers** trading indicators into a single dashboard
• Designed interactive interfaces for visualization of **financial indicators** module written in Python; improvised complex Ehlers indicators for more robust **momentum tracing** and **lower latency** in execution.
• Integrated a **backtesting** system with the modified **indicators** to implement momentum trading strategies which generated **+17% ROI** on a 3 months historical data on **8 digital assets** simultaneously.

Neev Finance | Lead Financial product strategy and Quant in DeFi   *Remote*

Neev | *With V1 launched in USA,having $2M+ deposits, pre-seed $500K*   *May '21 – Present*

*Currently leading the **quant and financial strategy** side and also being the **co-founding team member** of blockchain based NEO bank in the USA, tested with 100+ Beta testers and 400+ customers base, with 7x growth monthly.*

• Designed the **quant financial strategy and framework** using optimization algorithms staking of assets(in stablecoins) across various DeFi Protocols including L2 and L3 and aggregators across **various networks** and different **liquidity pools**, to generate a fixed and steady **APR** of more than **10%** excluding all hidden fees.
• Currently working on building a quant based **2-module framework** tracking high precise **price momentum** of volatile coins and strategizing the tick ranges of **volatile** Liquidity Pools on **Uniswap V3**.
• Currently leading the **quant strategy** of engaging **FDIC-secured** investment by taking **leverages** and **credit lines** with proprietary trading and providing customers with **high FDIC-insured** APY.
• Successfully built major financial modules like **revenue model**, **interest model, DCF, capitalization table**.

[_Different Quant Finance Explored_]

Pair Trading:	Regime pred. :	DeFi options:	Scenario generation	NFT marketplace
Combining correlated digital assets to execute pair trading strategies **Kalman Filters** with other statistical indicators. Experimenting with SOL and AVAX pairs currently.	Developing **hidden markov's models** and cluster analysis for market regime detection.	Utilizing volatile coins in DeFi protocols with **straddle options** on DeFi exchanges framework with automating **minting** and **redeeming** system with threshold losses.	Generated several simulation based **financial scenarios** integrated with financial models on the flow of funds for **risk, solvency, MCR** assessment	Building FIAT based strategic product, selling **music based NFT** product with quant strategies with reduced gas fees

Leadership and Entrepreneurial Experience

PrimaFace LLC. | Data, Blockchain product team lead, founding member   *Remote*

PrimaFace | Acquired a pre-seed funding of $300K   *Aug '21 – Present*

*Currently heading the **AI and blockchain product team** for building the product **architecture** of the company based helping on emotional well-being in mental-health space and converting them into digital avatar on blockchain*

• Responsible for designing **AI architecture** for the video analytics on **Visual, Acoustic, textual** modalities
• Designed advanced **emotional anthropology** for exporting **96** different emotion scales for generating the signature feature and also proposed **combined model** for integrating all these modalities
• Currently driving the blockchain strategy of **decentralized data storage system** and implementation of **digital avatar** on blockchain ensuring user **data protection** and **usage transparency**

Ai-Bound Scientific Services Pvt. Ltd. | Director, AI consultant   *Mumbai*

Profit shareholder | 2+ projects on-going   *Apr '21– Present*

Currently Heading an organization based AI/ML products leading into multiple business lines in Fintech and blockchain
• Lead in collaboration of worldwide **10+** companies for **Go-to-Go market strategy** of their products in Indian Markets; Companies include **First Derivatives(FX), DataRobot, AnyVision**
• Currently engaged with clients from **Biomedical** sector, building their AI products on **Imagery** and **NLP** based and clients from Photography studio to build a **virtual garment fitting product** on Model Images

Research Experience

AI Research Intern | National University of Singapore   *Virtual*

Vision and Interaction Group(vintage)| Prof. Stefan Winkler   *May '21 – Sep '21*

Objective was to combining facial expression recognition model with custom-developed audio emotion recognition model, to enable full multi-modal emotion recognition with continuous arousal-valence labels

• Performed a comprehensive literature review of feature and output level fusion models, reviewed the complex neural network architectures including **Resnet50**, etc.; identified suitable datasets
• Explored audio pre-processing, feature extraction from audio signals using **librosa, openSMILE**
• Trained the **Mel-Frequency Cepstral Coefficients (MFCC)** on a **CRNN** network, and **26 other low level** descriptive audio features from **openSMILE** on various supervised regressors for higher accuracy
• Applied 3D Convolutional Neural Network and **LSTM** model to fuse features from the two modalities

Data analyst Summer Project | Multi-university Project   *Virtual*

 Prof. Jarrod Vassallo | Prof. Sourindra Banerjee   *Mar '20 – Aug '20*

Objective was to study the influence of Covid-19 on human behavior upon using the Online food delivery services in Indian Market scenario using sentiment analysis

• Worked collaboratively with an **international team of researchers** including apart from head guides: Professor Jaideep Prabhu, University of Cambridge, Professor Ahmed Khwaja, University of Cambridge, Professor Magda Hassan, University of Manchester
• Performed the data extraction, preprocessed various **microfinance** data of India including geospatial data on banks, finance sectors, Gini coefficients, infrastructure development, government spending, etc., and Successfully analyzed the microfinance, market-level traits, satellite-based economic inequality levels.
• Worked competently to visualize the data to forward all the research insights using **Stata and Python** and Also analyzed the whole of India's geospatial data with **ARQGIS**

Position of Responsibility Roles

Founder | *Hear For You – Head-to-head Listening Platform*   *Jun '20 – Dec '20*

*Led a **12-member team** to destigmatize **mental health** and create a safe space via 1-to-1 discussions.*
• Connected **500+ students** to anonymous-empathetic listeners for providing emotional support.
• Built a community of professional counselors for guidance dealing in mental stress in academics