

# Nikhil Mudholkar

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## Education

### Indian Institute of Technology (IIT), Bombay

Mumbai, India

B.TECH, MEMS WITH MINORS IN COMPUTER SCIENCE AND ENGINEERING, MINORS GPA:- 8

May 2019

- Scored a spot in top 0.02% of the students to be eligible for admission in the University
- Awarded **KVPY fellowship** given annually to 2000 out of 0.1 million students to pursue research by Government of India
- Awarded **1st prize** in the Annual SAP Codejam hackathon

## Professional Experience

### Data Engineer | Tier Mobility, Berlin

October. 2021 - ongoing

Tech stack:- Python, Java, AWS, Terraform, Kafka, Kubernetes, DBT, Airflow, Looker, Zeppelin

#### Apache Zeppelin

- Solely responsible for Zeppelin, a notebook tool by Apache that's used by more than 50 analysts at Tier.
- Responsible for maintenance, enhancements, up time, backups, logging, monitoring, support and SLOs for Zeppelin

#### Airflow

- Working on boarding new services to airflow, configuring Kubernetes to run them and airflow integration for orchestration
- Responsible for maintenance, enhancements, up time, backups, logging, monitoring, support and SLOs for Airflow

#### AWS and Terraform

- Maintain the data infrastructure hosted on AWS using Terraform and implement enhancements and new infra requests
- Responsible for implementing ad-hoc engineering requests associated with the Tier AWS and Data analysis infrastructure

### Data Engineer | Capital One

June. 2019 - September. 2021

Tech stack:- Python, Flask, AWS, Oracle, Postgres, snowflake, Tableau

#### Cyber Security on Data Warehouses

- Developed apps to strengthen cyber security on snowflake, S3, RDS and oracle databases using cloudtrail and query logs
- Implemented User Entity Behaviour Analysis to find anomalies in data querying patterns to flag potential data breaches
- Created ETL pipelines to move high volume query history of users and publish anomalies for insider threat team investigation
- Received Pheonix Data Award at Capital One which is an org wide award for major breakthrough in solving data challenges

#### Process Monitoring Framework

- Developed a tool to monitor critical processes using graph databases to reduce their business impact in case of failures

## Personal Project - Derivatives Trading and Automation

### Technical Analysis Based screener

September 2019-ongoing

Tech stack:- Python, Flask, Sqlite, HTML, CSS

- Created a web application that scored stocks and gave trade recommendations based on Technical Analysis on user's portfolio
- The application was capable of Identifying Candlestick patterns on the minute level charting data
- The application calculates support and resistance levels based on fractal points
- The application also calculates indicators like Bollinger Bands, RSI and MACD

### Trading strategies and Automation

September 2019-ongoing

Tech Stack:- Python, Flask, postgresql, Celery, Redis, Ajax

- Created strategies with high returns and sharpe by backtesting them on past 5 years market data
- Created an automated trading system that takes Intraday trades based on strategies and predefined exit conditions
- The system tracks positions using real time ticks fetched from broker via webhooks and Broker APIs

#### Strategy 1: Theta decay on weekly Index options

- Creating a hedged position by simultaneously selling call and put options to capture theta decay on options

#### Strategy 2: Pair Trading

- Tracking sector wise co-integrated stocks/futures and generate hedged positions when their residuals diverged by 2.5 STD

#### Strategy 3: Calendar Spreads

- Tracking current and near month futures to create signals when the difference diverged by 2 STD from the historical mean

## Internship Experience

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### Capital One | Transpiler - A SAS-Python cross compiler

Summer 2018

RECEIVED A PRE PLACEMENT OFFER

- Developed an automated translation tool in Java to convert SAS scripts containing Teradata and ODBC SQLs to python
- Built the grammar for SAS language and used ANTLR4 to translate over 11,000 SAS scripts to python pyspark scripts

### Lokacart | Project by Microsoft and Nabard

Summer 2017

RECEIVED **LETTER OF RECOMMENDATION** FROM PROF RAMAKRISHNAN, CSE, IITB

- Developed an e-commerce app for farmers to sell their produce directly to end consumers thus eliminating the middle man

## Projects

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### Machine Learning

- **MEME Recommender:** Recommends memes using collaborative filtering algorithm with precision of 0.8 and recall of 0.84
- **Mental Illness Prediction:** Model predicts the mental health of employees based on 23 features with 80% accuracy

### Artificial Intelligence

- **Reinforcement Learning:** Programmed Epsilon-Greedy, UCB, KL-UCB algorithms to solve the multi-arm bandit problem
- **Pac-man Ghostbusters:** Built intelligent pac-man agent using heuristics like search, reflex, expectimax, Minimax

### BodhiTree : The IIT Bombay CS programming Website

RECEIVED **LETTER OF RECOMMENDATION** FROM PROF VARSHA APTE, CSE, IITB

- Implemented a centralized logging module on the BodhiTree application to track the changes made by students and TAs
- Developed a centralized module in Django to log actions and display on a user-friendly interface with search and filtering

## Skills

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<b>Datawarehouse and Modelling tools</b>	Oracle, Postgres, Sqlite, MongoDB, Snowflake, DBT, ETLAP
<b>Softwares and Frameworks</b>	Flask, Spark, ELK Stack, Docker, kafka, Airflow, Kubernetes, Terraform
<b>AWS technologies</b>	AWS S3, EC2, RDS, kinesis, Lambda, Glue, EMR, MWAA, Cloudtrail
<b>Languages</b>	Python, Java, C++, HTML, CSS, JavaScript, Matlab, Octave and $\text{\LaTeX}$