



# Swapnil Barai

Software Engineer 1B @ Bank of America

CIVIL AND ENVIRONMENTAL ENGINEERING (B.Tech Dual5Y)

+91 9834034808

[LinkedIn](#) [github](#)

[swapnilbarai149@gmail.com](mailto:swapnilbarai149@gmail.com)

## EDUCATION

Institute/University	Degree/Certificate	CPI/Percentage	Year
Indian Institute of Technology, Kharagpur	B.Tech(Dual Degree). (Civil Engineering)	8.12/10	2017-2022
Maharashtra State Board	SSC (XII)	82.62%	2014
Maharashtra State Board	HSC (X)	93.8%	2016

## EXPERIENCE

**Bank of America | Market Risk Technology** Mumbai, July 2022 – Present

### Event Orchestration

*Scala, Spark, Kafka, Zookeeper, SQL, Unix, OOPS*

- Implemented a distributed cache manager using Znode, and optimized logic for efficiently storing the state of events
- Developed a streaming process to consume different PnL and Position loaded events and take actions to update flags
- Worked on creating data dependency rules to govern the backfill and aggregation processes. Created producers responsible for generating essential events required for executing both aggregation and backfill operations seamlessly
- Created a command-line utility to handle end-of-day markers and showcase real-time aggregation status updates
- It converted a batch process into a real-time system, minimized downtime and simplified resubmission handling

### Aggregation And Backfill

*Spark Streaming, OOPS, Design Principles/Patterns, Impala, SQL*

- Found and Resolved Impala dialect issue which was causing problems while running Common Table Expressions (CTEs)
- Established a process to start data markers from upstream sources, aiding in identifying missing data for aggregation
- Mitigated External changes within the aggregation and backfill process, overall enhancing accuracy for risk managers

### Data Quality Checks And Automation

*Scala, Spark DataFrame, SQL, AutoSys, Shell Script, Kafka*

- Developed and implemented code to automate manual data quality checks, reducing execution time by half an hour
- Contributed to project automation with Autosys, cutting runtime by 2 hours, eliminating manual intervention

**ZestMoney | Software Intern** *React.js, JavaScript, Golang, Kafka, Python, Docker* Bangalore, April 2020 – June 2020

- Crafted React JS components (Form, Camera, Summary) for KYC Registration page, enhancing UI with Material UI
- Developed a transaction notification system utilizing Email and SMS for streamlined and reliable confirmations
- Designed an AI agent proficient to play Capture the Flag (CTF) version of PacMan by using Reinforcement Learning

## PROJECTS

**Examination Of Cracks | B.Tech Project** *Python, Pytorch, Flask, Transfer Learning, CNN, Docker* [Source Code](#)

- Implemented Transfer Learning to train a ResNet-50 Convolutional Neural Network (CNN) Model for precise crack identification in Civil Engineering Structures like pavements, resulting in an impressive accuracy of 96 %
- Developed and train a CNN model based on UNet architecture for the localization and measurement of crack areas
- Built a website to extract crack information from uploaded images using the above model, and Dockerized the code

**SBDART Automation | M.Tech Thesis**

*Python, Fortran, Tkinter, Openpyxl*

[Source Code](#)

- Facilitated collaboration between Aero-Opt model and SBDART model by creating a user interface using Tkinter
- Improved reliability by incorporating meticulous data checks, effective error handling, and streamlined manual checks

## SKILLS & CERTIFICATIONS

**Development** : Python, Scala, Golang, Javascript, SQL, React.js, Flask, Spark, Kafka, Zookeeper, Kudu, Impala, Unix, OOPS, Design Pattern, Pandas, Deep Learning, Machine Learning, Git, CI/CD

**Finance** : Derivatives (Options, Futures, Forwards, Swaps), Market Risk, Value At Risk

**Certifications** : Design Pattern In Go, gRPC[Golang] Master Class, System Design Interview Guide For SDE

## EXTRA CURRICULAR ACTIVITIES & ACHIEVEMENTS

- Advanced to the second stage after clearing the Meta Hacker Cup Qualification and First Round (2021)
- Cleared the initial screening rounds and advanced to the third round of the Flipkart Grid Hackathon (2020)
- Participant in the gold-winning play and the bronze-winning Nukkad team during the Inter-Hall GC (2020)
- Educated under privileged students and raised Swachh Bharat Abhiyan awareness during NSS activities (2017-2019)