Sudeep Batra

- **Date of birth:** 13/10/1977 • **Nationality:** India • **Address:** Pune, India
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Profile

- **Hardcore Java Programmer** with **22+ years** of IT experience in **Java/Spring.io/Python/Rust** with around **20+ years** of **Investment Banking** experience
- Core expertise in developing **high performance**, **low latency Quantitative Trading** Java/Python applications, **Reactive and Event Driven Programming** in Java and Python, Asynchronous websocket and Parallel programming in Python with C/C++ optimization and bridge, AsyncIO, **Performance tuning of Java and Python** applications to improve application performance, throughput and responsiveness.
- Architect, Design and launch from scratch of **Magnifi Trading Platform (https://magnifi.com/)** using **Microservices Architecture,** Apache Kafka, Cython, AsyncIO and integration of APEX Clearing Fractional/Notional Trading API's for execution of trades
- Architect, Design and Development of **Hyper Velocity Trading Engine** (**Low Latency/HFT**) in Java
- Implementation of **Polygon IO** NodeJS library's Websocket and Rest API to fetch real time prices for displaying on the Magnifi Trading portal and storing the pricing data in TimeSeries DB
- Implementation of **Unix Socket** Server and Client in **Node JS and Java** for transfer of pricing and candle data over the **socket**.
- Hyper Velocity Trading Engine (HVTE) is able to trade large number of stocks at warp speeds and employs various limit order book processing/trading strategies. Ability to smartly Order Slice Large Market Orders and execute orders at desired prices and minimize brokerage and slippage
- Implementation of the **robo rebalancer module**, to re-balance the portfolio automatically based on the weights.
- HVTE incorporates a full Fledged Algorithmic Trading System (Based on Technical Analysis - With a very simple Plug and Play for various different strategies). The System is capable of analysis of multiple different strategies for several thousand scripts with Event Driven Processing.
- **Parallel/Concurrent Processing of Streaming Data** through WebSockets to maximize the utilization of the available hardware.
- HFT Strategies based on the movement of the Order Book. Ability to monitor the Order Book at very High Speeds and based on the opportunity, buy and sell across multiple markets.
- Development of Various HVTE Modules- Alpha Module (Generation of Buy/Sell Signals), Order Manager, Portfolio Manager, Risk Manager, Cost Manager
- Worked in NY for ~10 years in Major IB's - **Goldman Sachs**, **Citibank, Bank of America** in a consulting role (through https://www.mitchellmartin.com/)
- Contribution to various open source projects on Git.
- Working in Investment Banking Domain since last 20+ years. Strong understanding of Equities, Derivates (F&O), MBS/ABS, Strong understanding of Technical analysis of securities.
- B.E. In Electronics and Telecom (Mumbai University) with First-Class.

Technical Summary

Java | Spring Boot | JPA/Hibernate | Spring Data | Spring Cloud

Reactive Programming (Project Reactor) | Reactive Spring Security 5.1 | WebSockets | Microservices

Algorithms + Data Structures | Python3 | numpy and pandas | High Performance Python | NodeJS

Rust Lang | Ultra-Low-Latency Systems | High-Throughput Systems | Micronaut Framework

TimeSeries Databases | Redis/Memcache | Sybase/Oracle SQL Databases | JProfiler/Visual VM

InfluxDB | Equities, Options, Index, Futures | HFT strategies

Work experience

02/2021 – present
Pune, India

Senior Software Architect
TIFIN GROUP

- Architect, Design and launch of **Magnifi Trading Platform (**https://magnifi.com/) from scratch using Microservices Architecture, Apache Kafka, Cython, AsyncIO and integration of **APEX Clearing Fractional/Notional API's for execution of trades**
- Implementation of the ability to execute a Basket of Trades with conversion of Notional amount to execution quantities and execution of the trades using the Apex Fractional API.
- Implementation of Polygon IO NodeJS library's Websocket and Rest API to fetch real time prices for displaying on the Magnifi Trading portal and storing the pricing data in TimeSeries DB
- Implementation of Unix Socket Server and Client in Node JS and Java for transfer of pricing and candle data over the socket.
- APEX Events API (Event Log which sorts system events by service-specific topic) magnifi implementation to get notifications(events) from APEX services and processing of the different event types.
- **Automated complete Start of Day processing** for reconciliation of APEX files/data with the magnifi trades, Account Balances, execution prices and quantities, automated blocking of the Apex Accounts based on the various flags, etc to generate a clear report of any mismatches or areas of concerns.
- Implementation of various Account Level checks such as Good Faith Violation, Buying Power calculation, Short Sell Check, etc.
- Account opening integration with APEX to offer many new account types, fixed income trading, options trading, and more than 15,000 new securities.
- Designed and built high availability DevOps solutions at scale on AWS.
- Hired solid talent across multiple teams.

11/2011 – 02/2021
Pune, India

Associate Principal - Technology
SYNECHRON TECHNOLOGIES

AQR Capital Management (Applied Quantitative Research) is a global investment management firm based in Greenwich, Connecticut, United States with ~$250 billion* in assets under management

- Architect, Design and Development of **Hyper Velocity Trading Engine** (**Low Latency/HFT**)
- Hyper Velocity Trading Engine is an **Algorithmic Trading** platform that is engineered to be a very **low latency** (microseconds) **Event-Driven** Real Time Market data processing, strategy, and order submission engine and is able to trade large number of stocks at warp speeds.
- **Hyper Velocity Trading Engine** incorporates a full Fledged Algorithmic Trading System which was designed and implemented as a distributed, high-capacity trading system which supported a variety of trader-configurable algorithmic trading strategies and was used daily by clients for executing live and simulated trades.
- **Parallel/Concurrent** Processing of Streaming Data through WebSockets to maximize the utilization of the available hardware.
- **HFT Strategies** based on the movement of the Order Book. Ability to monitor the Order Book at very High Speeds and based on the opportunity, buy and sell across multiple markets.
- Extensive **Performance Tuning** of Java applications.
- Architecture, design, and implementation of the firm's P&L systems.
- **Detail P&L calculations** by instrument, strategy and account and NAV generation and ROR calculations

05/2010 – 11/2011
New York, USA

Technical Architect/Lead
BANK OF AMERICA (Consultant, Mitchell Martin Inc)

SoFIA (Suite of Fixed Income Analytics) - Desk Export and Desk Position's Risk Calculator.

SoFIA is the primary portal tool for delivering Prices and Risk

Work experience

analytics for Structured Finance Products like Mortgage Backed Securities (MBS) and Asset Backed Securities (ABS) to Traders (Desk and Desk support), Research Group and Risk Management team

- Design the Desk Position Export Loader using Java, JDBC, and Java Collections Framework, etc to process the various Desk feeds and load the position data into the Sybase SQL Database
- Design and Implementation of the **Risk Calculator Module** responsible for the calculates of the various Risk Measures like Price, Effective DV01, Partials (2,5,10,30Yr), oas, duration, convexity, cpr-projections, eSpread etc for all trading desk positions for different pricing inputs, models and scenarios.
- Design and develop the Response Handler Module, which receives the Risk Data (JMS) from the Middle tier and stores the risk data in the Risk Database. (More than 2 million records on every nightly batch run.)
- Design and implement the standalone Hedge Calculator which reads the Hedge Positions and calculates the risk measures by calling the C++ Analytics library and stores the data into the Risk Database.

07/2007 – 05/2010
New York, USA

Senior Software Analyst
CITIGROUP EQUITY RESEARCH (Consultant, Mitchell Martin Inc)
DataCentral

Datacentral is a product of Citigroup Investment Research and Systems Development Department for the Storage of Market Data, Analytical Data and Investment Research Notes.

- Implementation of Market Data loader using Core Java, Multithreading, JDBC, XML, etc for loading the different market data feeds from Reuters and Thompson into the Datacentral. These feeds include share prices, trading volumes, currencies, indices and commodity prices.
- Implementation of Client Data feeds (using Core Java, JDBC, Multithreading, Java Collections Framework, J2EE, XML, JavaMail, etc) for automated delivery of products to global clients through Email and FTP. This also involved implementing Java scheduler to run the feeds at preconfigured times.
- Designed and developed the CSS Module, which consumes the messages from the JMS Queue and based on which restricts/un-restricts the Companies in Datacentral. This restriction of the company is then forwarded on to the GEO Website, which is used to suppress the Analyst Publications for the Company on the website

2004 – 10/2006
New York, USA

Senior Technical Specialist
GOLDMAN SACHS, PRIME BROKERAGE (Consultant, Infosys Technologies Ltd)
Java Reporting Engine

Implementation of a new Java Datafile engine and use of a third party tool called Aware for Goldman Sachs Prime Brokerage Reporting Section for generation of various Custody, Stock Loan, Risk, PRISM and Geneva On-Demand and Nightly reports.

- Design the Datafile engine using Core Java, Multithreading, JDBC, RMI, XML, etc to process the raw data from Sybase and present it in a format necessary for Aware to generate the on Demand and Nightly Custody, Geneva, Stock Loan, Prism, Risk, etc Prime Brokerage reports.
- Design the PDF and XLS compare tools (UNIX scripts) to extract the information from Actuate, Aware Generated PDF and Excel reports; compare the Actuate and Aware reports to ensure the correction of Aware report in automated fashion.
- Design and implement the customizable PB Recon Engine using Core Java, Multithreading, JDBC, XML, Collections Framework Implementations, etc. to perform in memory Reconciliation of Custody Account Positions.

Work experience

06/2002 – 02/2004
Milwaukee, USA

Programmer Analyst
NORTHWESTERN MUTUAL (Consultant, Infosys Technologies Ltd)
Project: New Securities System

The New Securities System initiative was a program designed to select and implement an IT solution to support NM Public and Private Securities investment accounting processes.

- Implementation of Java Engine for loading the different feeds for Futures, Forwards, Swaps, Options, etc into PAM Database

04/2000 – 06/2002
Bangalore, India

Programmer
RIVERSTONE NETWORKS(Consultant, Infosys Technologies Ltd)
Project: Riverart

Automated testing of the Riverstone Smart Switch family of routers ensuring that they were compliant with the routing protocol, Layer 2 and Layer 3 standards (RFC's and IEEE specs)

- Prepared the test plan based on the RFC's, IEEE specs and UNH test case series for each of the protocols that the router implemented.
- Designed a WYSIWG Tool for the automated generation of TCL/TK scripts to be run on a Unix Based Operating System for automated testing of Riverstone Routers.

Skills

– SOFTWARE DEVELOPMENT

- Java
- Algorithms + Data Structures
- Spring Boot 2.x/Spring Framework 5.x
- Reactive Programming (Project Reactor 3.x)
- Micronaut Framework
- Reactive Spring Security 5.1
- WebSockets
- JPA/Hibernate
- Python
- GoLang

– ALGORITHMIC FINANCE

- Market data management
- Order management
- Historical simulations
- Portfolio Optimization
- HFT strategies

Education

05/1995 – 1999
Mumbai, India

Bachelors in Engineering in Electronics and Telecommunication
Mumbai University

B.E. In Electronics and Telecom (Mumbai University) with First-Class.

Hobbies

- Tennis
- Music
- Trading