Bhavdeep Sethi
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Executive Summary

Mr. Sethi has spent 8 years working in the United States and 4 years in India, in various engineering and leadership roles in the technology industry. He also worked for 2 years in academia. His objective is to be successfully elevated to the IEEE Senior Member.

Education

- MS, Computer Science (Machine Learning), **Columbia University,** New York, NY, United States. Graduated Dec 2015
- BS (Engineering), **University Of Mumbai**, Mumbai, India. Graduated June 2010

10+ Years of Experience

- Feb 2022 - Current, Founding Engineer, **Frec Markets, Inc.,** San Francisco, CA
    - Led the design and development of the flagship Direct Indexing product. Enabled the company to come out of stealth and launch in October, 20213. Built most of the infra to support common Brokerage functionality like stock trading, cash transfers from banks, stock transfers from other brokerages are done in a scalable and reliable manner.
- Feb 2016 - Jan 2022, Staff Software Engineer, **Twitter, Inc.**, San Francisco, CA
    - Tech Lead for Ads Marketplace team, a mix of Software Engineers and Data Scientist, responsible for operating Twitter's real-time internal ad auction which selects, places and prices billions of ads per day and has operational responsibility for $4.5B+ in annual ad revenue. The team focuses on optimally balancing operating points between user experience, advertiser value and revenue, ownership of ads A/B experimentation framework and responsibility for launch decisions for ads experiments.
- June 2015 - Aug 2015, Software Engineering Intern, **TellApart** (acquired by **Twitter**)
    - Implemented Collaborative Filtering with Matrix Factorization Algorithm using Alternating Least Squares in Apache Spark
    - Implemented the Online Training of the User Score Distribution Model in Bidder Service to rank users
- Oct 2011 - June 2014, Senior Software Engineer, **Flipkart,. Inc,** Bangalore, India
    - Team lead For User Insights Team. Designed and developed a platform that ingested over 1.2 TB data everyday from heterogeneous systems, normalized it, transformed it to generate meaningful insights about the user.
- Aug 2010 - Sep 2011, Software Engineer, **MIME360** (acquired by **Flipkart**), Mumbai, India
    - Responsible for developing the company's core API that allows access to encrypted MP3 streams along with their metadata.

5+ Years of Significant Performance

- Founding Engineer, Feb 2022 - Current, **Frec Markets, Inc.,** San Francisco, CA
    - Led the project internally across engineering and design to ensure the product is launched in a timely manner. Helped develop the core algorithm, along with the simulation framework to back test against the data. Result of that analysis is published here: https://frec.com/resources/blog/frec-direct-indexing-algorithm
    - Wrote code to implement ETF-ETF harvesting to allow us to benchmark against the existing industry standard approach used by competitors. Result of that work is published in the white paper: https://frec.com/resources/blog/tax-loss-harvesting-etf-based-v-s-direct-indexing
    - As founding engineer, design and developed core infra for a brokerage service like Job scheduling, Dynamic configs, Email notifications, Trading Service, Tax Lot Handling, Dynamic rule engines, Brokerage Ops tools.

- Staff Software Engineer, Feb 2018 - Jan 2022, **Twitter, Inc.**, San Francisco, CA
    - Proposed and led the redesign of the budget pacing system from a request based model, to a more state of the art, time based mechanism.
        - Details of the work was published here: https://blog.x.com/engineering/en_us/topics/infrastructure/2021/how-we-built-twitter-s-highly-reliable-ads-pacing-service
        - The redesign allowed us to used advanced PID controllers for budget pacing resulting in net revenue gain of 3.5% (+$157.5M annualized revenue ay $4.5B yearly run rate)
    - One of the leads for re-architecture of the ad stack at Twitter, breaking the monolith AdServer platform to micro services while maintain existing scale (18k qps) and revenue ($3.6 Billion / year)
        - Details of the work are published here: https://blog.x.com/engineering/en_us/topics/infrastructure/2020/building-twitters-ad-platform-architecture-for-the-future
    - As part of the above re-architecture, led the redesign of the bidders, allowing twitter to launch ad products faster.
        - Details of the work are published here: https://blog.x.com/engineering/en_us/topics/infrastructure/2020/accelerating-ad-product-development-at-twitter
    - Involved in the development of fortifying the ad spend system, that serves as the source of truth for the budget pacing systems relaying data about advertiser spend in real time.
        - Details of the work are published here: https://blog.x.com/engineering/en_us/topics/infrastructure/2020/how_we_fortified_twitters_real_time_ad_spend_architecture
- Senior Software Engineer Aug 2012 - June 2014, **Flipkart,. Inc,** Bangalore, India
    - Designed and developed a platform that ingested over 1.2 TB data everyday from heterogeneous systems, normalized it, transformed it to user pivot and generated meaningful insights about the user [Java, YARN, Hbase, Storm, Kafka, TitanDB, Couchbase, Vertica, Dropwizard, ElasticSearch, MariaDB]
    - Presented the platform at Flipkart's tech conference Slash N, 2014, India https://www.youtube.com/watch?v=sLDXm_53-mM&t=2s
    - Developed the digital service that allowed Flipkart to launch its first digital store, Flyte (iTunes for India) receiving significant press. The service allowed valid users to download purchased MP3 content at different bitrates, applying appropriate geo-ip restrictions.
- MS, Computer Science (Machine Learning), **Columbia University,** New York, NY, United States. Graduated Dec 2015
    - MSTA scholarship for outstanding TA in Cloud and Big Data, and Big Data analytics.
    - Top grades for the research project on "Exploring adaptive learning methods for Convex Optimization" in the Advanced Machine Learning course
        - Primary Author https://scholar.google.com/citations?view_op=view_citation&hl=en&user=qbNto1UAAAAJ&citation_for_view=qbNto1UAAAAJ:u5HHmVD_uO8C