

# RONAK DILIP SHAH

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## SUMMARY

Backend Engineer with 2+ years of experience in scalable systems and 5+ years in ML/data. Proven fintech impact through automation, tooling, and risk modeling

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## EXPERIENCE

- MerQube Inc. - *Backend Engineer* San Francisco Jun 23 - Present
- **Async Target Portfolio API:** Built an API endpoint enabling clients to submit target portfolios for automated index rebalancing, launching 100+ indices and generating \$600k annually
  - **Index Platform API:** Designed and scaled production-grade FastAPI backend on K8s, improving developer and operations experience on working with index code
  - **Real Time Infra:** Led real-time infra upgrades using time-based autoscaling and safe rollovers, improving system uptime and reducing deployment costs by \$10k/month
  - **File Monitoring Service:** Built resilient file monitor service with user-defined workflows and integrated prometheus metrics and Grafana alerts, adding \$100k in ARR
  - **Multi Asset Framework:** Engineered object oriented framework with abstract interfaces and modular components for multi-asset indices; enabled reusable, type-safe index development
  - **Index Reporting Engine:** Engineered scalable, standardized reporting pipeline for 8000+ indices. Implemented robust data validation using pydantic to ensure accuracy and reliability
  - **Self-Service Index API:** Delivered client-facing API for index creation and backtesting; enabled near real-time onboarding of custom index strategies
- Affirm Inc. - *ML Engineer* Pittsburgh Oct 21 - Feb 23
- **Merchant Risk Modeling:** Built a CatBoost model to estimate daily merchant risk, improved loss prediction accuracy by 20%
  - **Intelligent Merchant Onboarding Platform:** Developed a GBM model and rule engine for merchant onboarding, reducing fraud losses by 10% and increasing approval rates by 4%
  - **Graph Analysis for Risk:** Designed a merchant portfolio graph using PII and attribute data, leveraging graph mining techniques to reduce fraud losses by 4%
- FedEx Ground Inc. - *Data Engineer Intern & Data Engineer* Pittsburgh Jul 20 - Sep 21
- **Weekly Performance Dashboard:** Automated weekly financial performance dashboards for the CFO's office, reducing manual reporting time by 50%
  - **Data Pipeline:** Created streamlined data processing pipeline using Apache Scoop, Bash and SQL to deliver performance reports to the stakeholders
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## PROJECTS

### Portfolio Optimization

- Built a Flask-based tool with Clickhouse and CI/CD for portfolio optimization
  - Published research paper: A unified framework for fast large-scale portfolio optimization [[link](#)]
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## AWARDS & ACHIEVEMENT

- Award of Honor for Outstanding Academic Excellence in AMS, Stony Brook University
  - Graduate Certificate in Quantitative Finance from AMS, Stony Brook University
  - Published *A unified framework for fast large-scale portfolio optimization* research paper [[link](#)]
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## EDUCATION

MS Applied Math and Stats - *Stony Brook University*, *GPA: 3.95/4*

*New York Aug 19 - May 21*

Bachelor of Technology - *SVNIT, Surat*, *GPA: 8.51/10*

*Surat, India Jul 12 - May 16*

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## SKILLS

Languages: Python, Julia, JavaScript, R, SQL, Go, Bash

Tools/Libraries: DBT, AWS, Spark, Git, Ansible, Flask, Pydantic, Docker, OpenLens, Kubectl, Helm

Machine Learning: Tree Models, Convex Optimization, Linear Models, Stochastic Calculus