NIKHIL NARAYANAN

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EDUCATION

UNIVERSITY OF DELAWARE M.S. Applied Mathematics

Newark, DE

September 2021 – May 2023

THE PENNSYLVANIA STATE UNIVERSITY

State College, PA

B.S. Chemical Engineering

September 2014 - May 2018

TECHNICAL SKILLS

• C# - .NET Core/.NET Framework

• C/C++

ETL - SSIS/Azure DF

TypeScript/JavaScript - React

SQL - SQL Server/PostgreSQL

Windows/Azure

PROFESSIONAL EXPERIENCE

DECISIVEDGE LLC Newark, DE

Lead Developer (Primary Client: Large National Student Lender)

September 2018 - Present

- Responsible for leading a multidisciplinary team of web developers, ETL and database developers, business analysts, and support professionals, driving continuous improvement while maintaining operational efficiency and stability.
- Lead the ongoing development and support of the certification and disbursement system which processes origination files, coordinates certifications, adjustments, cancellations, disbursements, and refunds via the CommonLine system, a web portal, and a fax service. During peak season, this system robustly disburses over \$150 million per day between a handful of banks and thousands of schools and branches.
- Designed, developed, and continuously maintain a collection of REST APIs that act as a gateway between a mobile application and the originations and servicing systems. These endpoints enable users to apply for loans, track disbursements, manage account information, and make payments.
- Designed, developed, and continuously maintain an OpenID Connect compliant single sign-on (SSO) system that
 consolidated identity systems from across multiple vendors into a unified platform. This system manages sessions,
 credentials, and permissions across several external and internal facing applications collectively serving over 1 million
 users.

PERSONAL PROJECTS

Nik's ML Library (NML)

<u>Github</u>

Developer and Maintainer

March 2024 - Present

- Developed a high-performance, header-only C++ library designed to provide lightweight and easily integrable implementations of common data science and machine learning primitives and algorithms, entirely independent of external dependencies, including the Standard Template Library (STL).
- Algorithm implementations include <u>Principal Component Analysis</u>, <u>Approximate Nearest Neighbors</u>, <u>Eigen Solvers</u>, <u>Pairwise Controlled Manifold Approximation (PACMAP)</u>, <u>Linear Regression</u>, and <u>Logistic Regression</u>.
- Data transformation and data structure implementations include an in memory <u>DataFrame</u>, <u>CSV Parser</u>, <u>Regular Expressions</u>, <u>Heap</u>, <u>MinMaxHeap</u>, <u>HashSet/Map</u> (2x faster than the STL for collections < 1M), and <u>RedBlackTree</u>.

Market Visualizer

MarketVisualizer.com

Developer and Maintainer

May 2023 - Present

- Developed a set based financial statement query language called Market Query Language (MQL) with a type system
 homomorphic to the financial markets. The Market Visualizer <u>MQL Query Editor</u> was built with no libraries and includes
 syntax highlighting, IntelliSense, autocomplete, and user generated macros.
- Created a series of dashboards to allow users to explore the query results to find equities of interest.
- Built an ETL system to maintain a data warehouse of historical currency exchange rates, commodity prices, global equity prices, and financial statements.