

## NIKHIL NARAYANAN

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### EDUCATION

#### UNIVERSITY OF DELAWARE

M.S. Applied Mathematics

Newark, DE

September 2021 – May 2023

#### THE PENNSYLVANIA STATE UNIVERSITY

B.S. Chemical Engineering

State College, PA

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)

[Github](#)

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 [Principal Component Analysis](#), [Approximate Nearest Neighbors](#), [Eigen Solvers](#), [Pairwise Controlled Manifold Approximation \(PACMAP\)](#), [Linear Regression](#), and [Logistic Regression](#).
- Data transformation and data structure implementations include an in memory [DataFrame](#), [CSV Parser](#), [Regular Expressions](#), [Heap](#), [MinMaxHeap](#), [HashSet/Map](#) (2x faster than the STL for collections < 1M), and [RedBlackTree](#).

#### 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 [MQL query editor](#) 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.
- Build an ETL system to maintain a data warehouse of historical currency exchange rates, commodity prices, global equity prices, and financial statements.