

# Nikhil Daehee Agarwal

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## EDUCATION

### Rutgers University-New Brunswick

M.S. in Computer Engineering, spec. Machine Learning

B.S. in Computer Engineering, GPA: 3.7/4.0

Secondary Academic Discipline - Computer Science

Rutgers HKN ECE Honor Society, IEEE

New Brunswick, NJ

Expected May 2025

Expected May 2024

## RELATED COURSEWORK

Intro to Artificial Intelligence

Data Structures

Discrete Structures I & II

Sociology of Medicine & Healthcare

Intro to Machine Learning

Software Methodology

Design/Analysis of Algorithms

Ethics & Professionalism

Deep Learning

Computer Architecture

Linear Algebra

Sociology of the Family

## WORK EXPERIENCE

### Barclays

#### Software Engineer Intern

Whippany, NJ

June 2023 - August 2023

- Part of team Group Financial Crime Operations, Wholesale KYC and Client Onboarding
- Developed in Java, Spring Framework, Microsoft SQL Server (SSMS), PEGA, with Agile deployment & Jira.
- Created technology to assist in ensuring regulatory compliance and safeguard against fraudulent activity

### Makonis

#### Software Engineer Intern

Morris Plains, NJ

December 2021 - January 2022

- Developed an interactive Java backend that verifies, consolidates, and error handles merging Profit and Loss (P&L) statements for multiple group companies into a single financial report
- Exported P&L statements from *Intuit Quickbooks* as .csv files, and generated a detailed report of a group's Total Income, Cost of Goods Sold (COGS), Expenses, Net Other Income/ Net Ordinary Income, etc.

### Wyzant

#### College/AP Level Math, and Physics Tutor

Bridgewater, NJ

September 2020 - May 2023

- Provided 1:1 academic support to students in Algebra, Geometry, Pre-calculus, AP Calculus, Multivariable Calculus, SAT math, ACT math, and Physics 1 by planning lessons and reviewing study techniques

### Uncle Julios

#### Server

Bridgewater, NJ

June 2022 - August 2022

- Collaborated with a team of restaurant staff to assist guests, offer recommendations, and efficiently resolve issues in a fast-paced customer service environment

## PROJECTS

### Handwritten Number ML Classifier | *Python, Numpy*

[Github](#)

- Built a **Neural Network** in Python to correctly classify handwritten numbers.
- Utilizes machine learning algorithms and **OOP** concepts to implement **forward/backpropagation**, activation functions, and loss calculation for intelligent learning.
- Trained the network on 60,000 images, which allowed the network to **correctly classify 97.64% of 10,000** new images

### AiBot Ship Handyman | *Python, Numpy*

[Github](#)

- Built search algorithms, **Bayesian Networks**, and **Markov Chains**.
- Implemented **A\* algorithm** for path finding and optimized test environment generation from quadratic to linear time.
- Built two neural networks to classify images (binary and M-ary classification) with **99.04% accuracy** on an unseen test dataset.

### ECE443 ML Term Project | *Python, Scikit-learn, Jupyter Notebook, Numpy, Pandas*

[Github](#)

- Implemented **Quadratic Discriminant Analysis** and **K-Nearest Neighbor** classifiers on sound clip and imaging datasets from Kaggle.
- Achieved **91% accuracy with the K-NN classifier** on the sound-clip dataset (10 class classification tasks).
- Explored classifier performance with confusion matrices, performance metrics (accuracy, precision, f1-score, etc.), and ROC curves.
- Conducted preprocessing of the datasets and explored **ML ethics** concerning each dataset.

### Notepad App "Infinote" | *Python, SQL, Flask, Docker, Google Cloud*

[Github](#) | [Live Website](#)

- Implemented a notepad/calendar/password storage app using the **Flask framework**.
- Features **REST API**, **OOP**, robust login/authentication methods via *Flask Session*, and SMTP email notification capabilities.
- Utilizes **SQLite3 database** with data normalization for efficiency.

### Pharmacy SWE 2023 | *Javascript, HTML/CSS, firebase DB*

[Github](#)

- Developed a medication service website with order, pay, and delivery functionality as part of a 10-member team
- Implemented **RESTful API architecture**, in conjunction with **Javascript async and await** properties
- Personally developed the backend for our prescription validation & maintenance system

### Brew & Bites | *Java, XML, Android SDK*

[Github](#) | [Google Play](#)

- Implemented **OOP and Event-driven methodologies** to create a cafe application where users can add items to a cart, view prices and totals, and view active orders.
- Utilizes Android's shared preferences for storage on local devices and communication between **Android views**.
- Implements **Inheritance and Polymorphism** for all Java menu item classes (donut, coffee, etc.)

## **VOLUNTEER WORK**

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**Urban League of Morris County**

Morristown, NJ

**Mentor / Volunteer Math Teacher**

May 2018 - August 2020

- Actively supported field electrician candidates through the Urban League Power Systems Institute Program for First Energy.

*First Energy* is a utility company that hires field electricians through this program. The candidates undergo various tests: physical strength, endurance, ability to climb, knowledge of tools, and an interview. Shortlisted candidates must be able to clear entry-level English and Math requirements at the *Raritan Valley Community College* in NJ.

## **SKILLS**

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*Programming:* Python, Java, C/C++, Javascript, Matlab, RISC-V, SQL, NumPy, Pandas, React, Sci-kit learn

*Technologies:* Jupyter Notebook, Linux, Git/Github, Firebase, PEGA, AWS, Jira, Bitbucket, Docker, Google Cloud

*Frameworks:* PyTorch, Flask, Spring, Express

*General:* Teamwork, Communication, Public speaking, Organization, Problem-solving, Time management, Agile