

# 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 2023  
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

- Team Wholesale KYC, Client Onboarding, and Group Financial Crime Operations
- Developed in Java, Spring Framework, Microsoft SQL Server (SSMS), PEGA, with Agile deployment
- 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 project 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

repository: [Number Classifier ML](#)

- 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

repository: [CS440 AI Bot Project](#)

- Built search algorithms, Bayesian Networks, and Markov Chains.
- Implemented A\* algorithm for path finding and optimized test environment generation from quadratic time 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

repository: [CE443 Machine Learning](#)

- Implemented QuadraticDiscriminantAnalysis 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 task).
- Explored performance of the classifiers with confusion matrices, performance metrics (accuracy, precision, f1, etc.), and ROC curves.
- Conducted preprocessing of the dataset's and explored the ethics of ML concerning each dataset.

### Notepad App "Infinote" | Python, SQL, Flask

repository: [Infinote\\_app](#)

- Implemented a notepad/calendar/password storage app using the Flask framework.
- Features RESTful 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

repository: [SWE-Online-Pharmacy-Project](#)

- 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, AndroidStudio

repository: [cafe android application](#) Google Play: [Brew & Bites](#)

- 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**

**Urban League of Morris County**

Morristown, NJ

**Mentor and 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 its field electricians through this program. The candidates go through a range of 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**

*Programming:* Python, Java, C/C++, Javascript, Matlab, RISC-V, SQL

*Technologies & Framework:* Flask, Jupyter Notebook, Spring, Linux, Git, HTML/CSS, Firebase, PEGA, React

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