Karamat Hasan

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Education

Benjamin N. Cardozo High School, 57-00 223rd St, Queens, NY 11364 2020 - 2024

- Courses: AP Computer Science Principles, AP Computer Science A, AP Physics 1, AP Physics 2, AP Calculus AB, AP United States History, AP World History, AP Microeconomics, AP Literature and Composition
- **AP Scholar with Honor**, Arista National Honors Society
- Test Scores: AP Computer Science Principles: **5**, AP Computer Science A: **5**, AP Physics 1: **5**, AP Physics 2: **5**, AP Calculus AB: **5**, AP Microeconomics: 5, AP World History: **5,** AP United States History: 4, AP Literature and Composition: 3

Stony Brook University, 100 Nicolls Rd, Stony Brook, NY 11794 Expected Graduation: 2028

Summer Programs: Inspirit AI - Introductory Machine Learning course: July 3, 2023 - July 14, 2023

- Introduction to regression, classification, **neural networks**, and **Large Language Models**. Used various frameworks/libraries such as **TensorFlow**, **SciKit Learn**, and **Keras** to develop a computer vision model and present the topics to other participants

Leadership

BNCHS **FRC** Team 5599 Robotics Programming Division Leader 2023 - 2024

- Programmed **autonomous** and **teleoperated control** for competitions
- Tutored **15+ students** coding in Java and Object Oriented Programming for robot control and automation for 2 years
- Responsible for aiding in the organization of fundraisers and outreach events

BNCHS **FRC** Team 5599 Robotics Programming Mentor 2024 - present

- Creating video lessons of programming examples for robot control and guiding future programmers

BNCHS **Game Development** Club Founder and Leader 2023 - 2024

- Introduced programming with the **Unity Engine** and C# to 10+ students to develop a game within a month

Projects

GLSL Quaternion Mandelbrot set Cloud render | source code | **OpenGL** | **GLSL**

- Creating a render of the **Mandelbrot** set with **quaternions** as inputs to the set that defines the Mandelbrot set. Using the **Beer-Lambert Law**, the set can be rendered without the calculation of normals.

GLSL Newtown's Fractal Animation| source code | **OpenGL** | **GLSL**

- Creating a 2D animation of **Newton's fractal**

CustomNet (Work In Progress) | source code | **Python** | **NumPy** | **Pandas**

- A **neural network** made with Python and **NumPy** developed to explore parameterized activation functions

Technical Skills

Languages: C++, C#, Java, Python, Javascript, HTML/CSS, OpenGL
Developer Tools: Git, Anaconda
Libraries/Frameworks: ReactJS, NodeJS, TensorFlow, SciKit Learn, NumPy, Pandas, matplotlib