

GILVIR GILL

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EDUCATION

STONY BROOK UNIVERSITY

Aug. 2018 - Dec. 2021

- ▶ **GPA 3.97 Major GPA 4.0**
- ▶ Pursuing Bachelors in Computer Science and Mathematics with Political Science minor.

EXPERIENCE

RESEARCHER

SBU PoliTech

Aug. 2019 - Present

- ▶ Taking automated approaches to redistricting, using geospatial aggregation techniques to combine Census and precinct-level election data for 36 states, and treating assignment as a graph problem.
- ▶ Updated the demo redistricting system by adding new geometry-based population and compactness measures via JTS; working on graph partitioning and multi-step simulated annealing implementations.

IT DIRECTOR

Stuyvesant SU

Jul. 2017 - Jul. 2018

- ▶ Wrote automatic seat assigner in Python for over 3000 graduation attendees, making it possible for Stuyvesant High School to do reserved seating efficiently for the first time.
- ▶ Created StuyActivities.com (Flask, SQLAlchemy, jQuery), which is used by 186+ organizations for electronic club approval, member management, and meetings and room reservation.

ENG. MENTOR

Kinet-X

Jul. 2017 - Present

- ▶ Developing curriculum and leading courses for 20+ students (grades 6-11) using Arduino IDE and various sensors, motor controllers, and other electronics.
- ▶ Taught 100+ beginner students (grades 4-7) basic electronics (breadboard prototyping, soldering, circuit solving), and 40 students (grades 5-8) introductory robotics with mBlock and Arduino.

PROJECTS

NYCIML SCORING

Dec. 2018 - Present

A scoring system for math competitions used by a 40-school math league with 550+ students, featuring a GraphQL API (Flask, SQLAlchemy, Graphene; custom integration of Graphene and Cerberus), and a React/Apollo front-end.

GO GRAPHICS ENGINE

Jan. 2018 - Jun. 2018

A Go-based 3D graphics/animation renderer and primitive concurrent CPU-based matrix library.

Supports Gouraud shading/Phong Reflection, and affine transformations and keyed transformations on .obj files.

PATHFINDER

Apr. 2019 - May 2019

A JavaFX-based visualizer for pathfinding algorithms performed on a 2D grid that shows what nodes are expanded by a given algorithm (Dijkstra's, distance-heuristic A*, etc.). Includes a built-in map editor and animation speed control/stepping.

ACHIEVEMENTS / SKILLS

COURSEWORK

Real Analysis, Honors Data Structures & Algorithms, Finite Math Structures, Statistics, Honors Theory of Computation (Automata/Computability/Complexity Theory), Systems, Software Development (MERN), Natural Language Processing

LANGUAGES

Java, Python, Go, C, JavaScript, TypeScript

TOOLS & FRAMEWORKS

MongoDB, SQL, Git, Docker, Node, Encog, Flask, Nginx, React, GraphQL (Graphene, Apollo Client), MobX, Maven, PostGIS

ACHIEVEMENTS

Junior Academy Biodiversity Challenge Winner (2017)

"Best Use of Blockstack" \$1000 prize at HackPrinceton (2019)

Member of C.S. Honors program at Stony Brook

OTHER SKILLS

Arduino, G Suite, HTML, CSS, Illustrator, Photoshop, AutoCAD, SolidWorks