GILVIR GILL

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EDUCATION

STONY BROOK UNIVERSITY
Aug. 2018 - Present

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

EXPERIENCE

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.

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.

ADMINISTRATOR
Emenbee Realms
2013 - 2017

- Managed several dedicated servers used to host a Minecraft server network with over one million unique players from 139 countries and 1400 peak concurrent users (Docker/Swarm, Redis).
- Developed server plugins in Java such as an Elo system for competitive minigames and an AI anti-cheat that uses CNNs to detect suspicious behavior.

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.

PROJECTS

NYCIML SCORING — Dec. 2018 - Present
A scoring system for math competitions to be used by a 450-student math league starting in 2020, 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, Data Structures & Algorithms, Finite Math Structures, Statistics, Theory of Computation (Automata/Languages)
Spring 2020: Systems, Natural Language Processing, Abstract Algebra

LANGUAGES
Java, Python, Go, C, JavaScript, TypeScript

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

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

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