Shubham Parab

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Education

New York University, Brooklyn **2024 – 2027**
Bachelor of Science in Computer Science, GPA: 4.0/4.0

Lynbrook High School, San Jose **2020 – 2024**
High School Disploma, Valedictorian, GPA: 4.0/4.0

Coursework and Technical Skills

Coursework: Data Structures and Algorithms, Object Oriented Programming, Discrete Math, Probability and Statistics
Languages: Python, JavaScript, HTML, CSS, Svelte, React, Node.js, Tailwind, Next.js, Java, YAML
Web Technologies: Web Effects, Databases, APIs, REST, Graphics, Media Interfaces, Long Polling, Game Development
Software & Tools: Git, Jupyter Notebook, Visual Studio Code, Vercel, Deta Space, Npm

Experience

Lead Software Developer **2024 – Present**
New York University Concrete Canoe Team
- Researched, designed, currently implementing sensor-based paddling optimizer, improving slalom racing synchronization and performance amongst 400+ teams nationwide, boosting capabilities of 11-time regionals champion team.
- Designed motorized electric crate to transport 200+ lb canoe for competitions.

Virtual Reality(VR) Interactions Developer **2024 – Present**
New York University Metaverse for Education Project
- Constructed Unity models for machines like 3D printers in NYU's Makerspace lab to allow remote training.
- Developed Meta Quest Oculus headset integration for interactive functionality on Tormach 770M CNC milling machine.

Teaching Assistant **2023 – 2024**
Lynbrook High School Computer Science Department
- Built multiple visualizers and learning tools for Java programming and AP Computer Science classes used by 150+ students, ran several classes of 30+ students, assisted students on labs and assignments.

Secretary and Head of Frontend Development **2023 – 2024**
Lynbrook High School Web Development Club
- Conducted weekly presentations and tutorials in club meetings, built websites for school organizations.

Publications

Parkinson Disease Recognition using a Gamified Website: ML Development and Usability Study **2023**
- Developed a web-based test and Random Forest Model to diagnose Parkinson's disease with an accessible and cost-effective approach in collaboration with J. Boster or Dr. Washington, University of Hawaii. *JMIR Formative, Vol 7*

DL Prediction of Parkinson's Disease using Remotely Collected Structured Mouse Trace Data **2024**
- Enhanced data collection platform for preliminary Parkinson's disease detection study to support collection of more diverse data, more robust tests, complex deep learning models, and ten times the participants. *MedRxiv*

Enhancing Automated and Early Detection of Alzheimer's Disease using Out-Of-Distribution Detection **2023**
- Applied Out-of-distribution detection to brain MRI scan based 2D CNN models and image segmentation based Random Forest models, boosting Alzheimer's Disease detection and classification accuracy to 98% and 95%, respectively. *ArXiv*

Projects

Data Structures Visualizer | *HTML, JavaScript, CSS* **2024**
- Drag-and-drop based visualizer for Linked Lists, Stacks, Queues, Binary Search Trees, and Hashmaps built for Prof. Salim Arfaoui of NYU Computer Science, used by several NYU Professors and 600+ NYU students yearly.

Pacman | *HTML Canvas, JavaScript, CSS, Node.js* **2022**
- Graphics-based game featuring HD adaptive graphics, a live leaderboard, replay features, played by 700+.

R-squared Animation | *HTML, JavaScript, CSS* **2024**
- Interactive visualizer and animation for R-squared statistics concept, built in collaboration with Mr. Kenny Iams, AP Statistics teacher of Lynbrook High School, and used by 100+ AP students yearly.

AGP Beats | *HTML, JavaScript, CSS, Node.js* **2022**
- Music player website with stream counts, playlists, queues, and synced music streaming, used for 2000+ song streams.

Binary Tree Visualizer | *HTML, JavaScript CSS, Node.js* **2023**
- Interactive visualizer for binary tree traversal algorithms, built for Mr. Mark Kwong and Mr. Brad Fulk, AP Computer Science teachers at Lynbrook High, and used by 100+ AP Students yearly.

Parkinson's Disease (PD) Motion Tracker | *Node.js, Python, HTML, JavaScript, CSS* **2024**
- Web-based keystroke and mouse data collection system used to gather motor data from 400+ PD study participants.