JYOTIRADITYA | 19CH10017

CHEMICAL ENGG. (B.Tech 4Y)

EDUCATION

Year	Degree/Exam	Institute	CGPA/Marks
2023	B.TECH	IIT Kharagpur	9.44 / 10
2019	AISSCE	DAV Public School, Bistupur, Jamshedpur	96.2%
2017	AISSE	DAV Public School, Bistupur, Jamshedpur	10 / 10

PROJECTS

PyVoice Assistant Bot | Python, Speech Recognition, Text to Speech, PyAutoGui, NumPy, PyWhatKit   Jun' 21 - Jul' 21
- Implemented a voice command system application using Python **text to speech** library to parse user's voice input and perform tasks
- Integrated **Gsearch, Wikipedia, OpenNews, OpenWeather** APIs, and PyWhatKit to enable location, product, fact-check, entity search, location-based real-time weather updates, news headlines, and Youtube autoplay respectively, with user-based customisation
- Applied speech to message feed system to **automate** user **reply** on messaging applications using **PyWhatKit, NumPy, PyAutoGUI**
- Integrated online meeting screen capture with webcam affixed and voice record feature to **minimize setup time** for background processes in a meet and cut down process delay thus, reducing user-system interaction and providing a **hands-free** experience

Erosion Simulation for Procedural Generation | C#, Unity, Fluid Simulation, GPU parallelization   Apr' 21 - Jun' 21
- Analysed a research paper on **real-time fluid simulation** to replicate the motion of water on Earth's surface and resulting erosion rates
- Employed **GPU based parallelization** using **Compute Shaders,** of the algorithm for processing the simulation at interactive frame rates
- Implemented **mesh and texture generation algorithms** in C# and simulation results successfully reproduced natural relief features

Immersive Terrain Architecture | Unity, Realtime GPU rendering, Terrain System, Virtual Reality   Feb' 21 - Mar' 21
- Constructed an immersive **3D** environment using **Unity Engine's** terrain system and in-built shaders, to simulate a real-world experience
- Integrated features of terrain system to generate mesh height map, **3D particle system,** and post-processing for a graphic-rich realism
- Employed real-time **GPU rendering**, and lightmap baking that resulted in a **100%** increase in frame rate. (10-15 fps to 30-40 fps)
- Planning to integrate the environment with **Virtual Reality** using Unity engine for enhanced in-depth realism

2D Platformer Android Application | Unity, C#, Firebase, AdMob integration   Dec' 19 - Apr' 20
- Developed a 2D platformer android application '*Ricksy Run*' currently grossing **15,000+** downloads worldwide on the Play Store
- Designed an interactive user interface, character, and level animations and integrated Google **AdMob** API for **revenue** generation
- Developed a 3D top-down application '*Athanatos*' for '*Indie Game Jam 2020*' and implemented 2D physics, lightmaps, and UI animation
- Used Google **Firebase** for user account authentication and real-time database APIs to implement a global **leaderboard** feature

Personal Portfolio Website | HTML, CSS, JavaScript, Frontend   Dec' 20 - Feb' 21
- Designed a **responsive** personal portfolio website to communicate with clients (for **UI/UX** design) and exhibit projects and skillset
- Used **HTML-**based structure, stylesheet **CSS** to design user interface, and employed **JavaScript** for responsive and interactive site animation. Integrated with **PyVoice** Bot to redirect to the website on user command

COURSEWORK INFORMATION

Mathematics and Computing: Programming and Data Structures (Theory + Lab) | Probability | Data Structure and Algorithms* | Numerical Solution of Partial Differential Equations | Transform Calculus | Python Specialisation* | Mathematics (I + II)
Core: Chemical Process Calculations | Chemical Engineering Thermodynamics | Fluid Mechanics | Heat Transfer   [*MOOCs]

SKILLS AND EXPERTISE

Programming Languages: *Proficient in* C | C++ *Familiar with:* Python | C# (for Unity)
Development Tools and Libraries: OpenCV | NumPy | PyAutoGUI | Pandas | Unity | HTML | CSS
Utilities: MySQL | LTSpice | Latex | Solidworks | Linux | Git | MS Office | Adobe Photoshop | Adobe Illustrator | DaVinci Resolve

AWARDS AND ACHIEVEMENTS

- **Department Rank - 2** out of 110 students in the Department of Chemical Engineering (Rank - 1 among B.Tech students)
- **Runners' Up** in 'Robosoccer 2019': Designed a relay circuit network for bot navigation and to ensure smooth control during the match
- **All India Rank - 509** in KVPY (SA - 2017) | **All India Rank - 3481** in JEE (Advanced) - 2019 | **City Rank - 2** in AISSCE - 2019 (science stream)

POSITIONS OF RESPONSIBILITY

Head of Management | Computer Graphics Lab   Sep' 19 - Present
- Managed a team of over **40** members in the society and presided over the induction process of junior developers in the team
- Supervised the functioning of the society regarding the projects and initiatives it undertakes and mentoring the current team participating in the **Game Development World Championship 2021** (largest game developer-focused competition in the world)
- Performed a key role in the **formalization** of the society under students' gymkhana and have undertaken an **outsourcing project** with a startup aiming to impart fitness awareness in the youth based on user **gesture-**controlled web application
- Collaborated with the students' gymkhana to conduct a week-long **Open IIT** game and graphics development **workshop** with the team

Member, Quiz Team | Lal Bahadur Shastri Hall of Residence   Aug' 19 - Oct' 20
- Won **Bronze** medal at the Kshtij 2020 Biz-Tech quiz, and participated in Spring Fest 2020 Biz-Tech quiz, and Open IIT 2019 freshers' quiz
- Regular participant in the sessions organised by the Quiz Club, and was imparted the responsibility to **conduct** weekly hall quiz sessions

EXTRA CURRICULAR ACTIVITIES

- Volunteered for the **National Service Scheme (NSS)** and helped organize free medical camps, spread awareness regarding substance abuse, CoVid-19 precautions, conducted a cloth donation drive, and participated in the plantation drive
- Founded the science club of the school, '*Antagyah*' and took up initiatives to set up **Atal Tinkering Lab**, organized summer workshops, hackathons and conducted events at the inter-school level

!self declaration by the student