



## Satyam Kumar

Roll No.: 23PHC1R45

Master of Science and Technology

Engineering Physics (Electronics Specialization)

National Institute Of Technology, Warangal

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Portfolio Profile

GitHub Profile

LinkedIn Profile

## EDUCATION

### • National Institute of Technology, Warangal

2023-Present

M.Sc.(Tech) (Engineering Physics/Electronics)

CGPA: 7.78

### • St.Columba's College, Hazaribag

2019-2022

B.Sc.-Physics(Electronics), Jharkhand

CGPA/Percentage: 7.40

## PROJECTS

### • PixLune – AI Image Generator | MERN Stack, Hugging Face, Cloudinary [Live](#) / [Source Code](#)

- Developed a full-stack AI image generation platform using Hugging Face's **Stable Diffusion XL Base 1.0** model.
- Implemented secure JWT authentication and protected routes, with user input validated using **Zod schema**.
- Integrated **Cloudinary** to manage and store user-generated image data.
- Created a responsive UI using React and Tailwind CSS with smooth UX — including loading states, profile dropdown, and mobile-friendly design.
- Maintained user history with MongoDB and enabled prompt-based generation via Hugging Face Inference API.

### • AlgoVisualizer – Sorting Visualizer | React, Vite, JavaScript, Tailwind CSS [Live](#) / [Source Code](#)

- Developed a sorting visualizer that allows users to visualize and understand the working of different sorting algorithms interactively.
- Implemented visualizations for Bubble Sort, Insertion Sort, Merge Sort, Quick Sort, and Selection Sort with adjustable animation speeds.
- Created a responsive interface using React and Vite, allowing smooth interactions across devices.
- Used Context API for managing global state, and optimized the UI with CSS for better user experience.

### • YouTube Video Downloader Backend | Node.js, Express.js, @distube/ytdl-core [Source Code](#)

- Built the backend for a video downloader that supports downloading videos from YouTube using URLs.
- Utilized @distube/ytdl-core for efficient video downloads and Express.js to handle server-side logic.
- Implemented user authentication for secure access to download features.
- Optimized video download process to support multiple resolutions and formats for better user experience.

### • Gravity Smash | HTML, CSS, JavaScript

[Live](#) / [Source Code](#)

- Developed an arcade-style game where the player controls a rotating launcher to shoot projectiles and avoid incoming colored balls.
- Implemented using JavaScript and HTML5 Canvas for rendering and DOM manipulation.
- Game over occurs when a ball touches the center of the screen, and points are scored by destroying balls.
- Deployed the game as a live web app for easy access and played directly in a browser.

## TECHNICAL SKILLS

**Languages:** C++, JavaScript, TypeScript

**Frontend:** React.js, RestAPI, HTML/CSS, JavaScript, Bootstrap, Flowbite, TailwindCSS

**Backend:** Node.js, Express.js, MongoDB, Prisma

**Concepts:** Data Structures and Algorithms (DSA), Compiler, Operating System, Object Oriented Design & Programming, Computer Networks, Database Management System

**Developer Tools:** Git, Github, VS Code, Pycharm

**Coursework:** Computer Organisation, Operating System, Assembly, Digital System Design, Communication System

## CERTIFICATIONS

- **Full Stack Web Development** Completed Full Stack Web Development course by Angela Yu on Udemy.
- **Full Stack Development Cohort 2.0** Completed Cohort 2.0 Full Stack Development course.
- **CS50 Introduction to Computer Science** Completed CS50 course by MIT (OpenCourseWare).
- **Data Structures and Algorithms** Completed an online course on Data Structures and Algorithms (DSA).

## ACHIEVEMENTS AND AWARDS

- **Participated in Smart India Hackathon** AlumniNet platform to alumni-student interactions.
- **Participated in Ethos 2024, IIT Guwahati** Worked on building a more stabilized video call platform.