Manav Marmat

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January 16, 2026

Education

B.Tech. Electronics and Communication Engineering July 2023 – Present

Maulana Azad National Institute of Technology (MANIT), Bhopal **CGPA:** 8.50/10.00

Selected Coursework: C Programming (A), Professional Practices (A+), Fundamentals of Design Thinking (A), Engineering Graphics (A+), Numerical Analysis (B+), Microprocessor and Microcontrollers Lab (A+), Digital Signal Processing Lab (A), Linear Integrated Circuits (A), Information Theory and Coding (A), Data Structures and Algorithm (A+), Digital Image Processing, Computer Networks, Engineering Management.

Skills

Technologies and Languages: C++, C, Javascript, Python, HTML, CSS.
Developer Tools: Git/Github, VS Code, Visual Studio, Postman, Google Colab.
Core Electronics Tools: LTSpice, AMD Xilinx Vivado, TINA-TI, Keil uVision5, Cadence Virtuoso, KiCAD, Arduino IDE.
Frameworks and Libraries: WebGL2, OpenGL GLUT, p5.js, Ren'Py, SFML, PyTorch, React, Node.js, Matplotlib, Plotly.
Misc. Tools: Piskel, Adobe Illustrator 2019.
Soft Skills: Effective Communication, Design Thinking, Team Resource Planning and Leadership.
Cloud Platforms: Azure, Render, Vercel, MongoDB Atlas.

Experience

IASc Summer Research Fellow, CSA Department, Indian Institute of Science, Bengaluru May 2025 – July 2025

- Created a **WebGL2 based Software** for visualization of topological data using contour trees.
- Enabled scalar function analysis through branch selection. Used **impostor geometry** for optimized rendering.
- Tools Used: JavaScript, WebGL2, GLSL ES 3.00, HTML5, CSS3.

Team Leader and Lead Game Developer, **"BisKit"** – BIS Hackathon Project, MANIT Bhopal Dec 2024 – Jan 2025

- Developed two educational games to promote Indian Standards, led gameplay design and team coordination.
- Employed AI-based asset generation using Stable Diffusion 2.
- Tools Used: JavaScript, p5.js, Python3, HTML5, CSS3.

Projects

PulsarPReSPIDAR - Pulsar-Polarisation REsolved Single Pulse Interactive Data AnalyseR Dec 2025 – Jan 2026

- An open-source data-analysis tool for visualizing and exploring single-pulse polarimetry data from the MeerTime Single Pulse Database.
- Designed minimal UI for Plots with user friendly controls as the Technical Developer.
- Tools Used: React, Plotly, Python, JavaScript, Node.js.

AudioPrism - A UNet based audio stem segmentation model Oct 2025 – Dec 2025

- A UNet-based CNN using STFT to separate out stems from audio mixes, hosted on Azure as a full-stack AI webapp.
- Initial prototype trained on BabySlakh16k with best L1 training loss of 0.0234.
- Tools Used: Python, PyTorch, JavaScript, React, FastAPI, Node.js, Azure, Vercel, Render.

Binary Star Simulation in p5.js Nov 2024

- A 2D binary star physics simulation using p5.js and object-oriented design.
- Visualized orbital dynamics, radial velocity evolution and light curve with eclipse effect.
- Optimized by controlling canvas pixel density for performance during high-volume draw calls on high-DPI displays.
- Tools Used: JavaScript, p5.js, HTML5, CSS3.

BhaataPhod – 2D Space Shooter Game | itch.io June 2024

- A Bullet-hell style 2D space shooter game using C++, with self-made sprites, smooth controls, logic and mechanics.
- Used OOP concepts for game objects modularization and centralization of textures and assets setup.
- Tools Used: C++, SFML, Piskel.

MOOCs

CS50x - Introduction to Computer Science July 2024

Harvard Online

Credential ID - 22244739-4a74-41de-a5f4-ccff1cd66548