BHUVAN E

email ◇ github ◇ website

OBJECTIVE

Software enthusiast who loves pushing tech to its limits and finding creative ways to make things work differently. Passionate about game development, automation, and security, with a focus on hands-on learning and solving real-world problems.

EDUCATION

Bachelor of Electronics and Communication Engineering, PES University 2021 - 2025

Minor in Computer Science, PES University

SKILLS

Technical Skills	Version control (Git), build automation (Make, CMake), Desktop automation (Lua, C), Web development (custom portals, Raspberry Pi), Cybersecurity (USB Rubber Ducky, automation), Hardware integration (camera and servo-based automation)
Soft Skills	Problem-solving, creativity, self-learning, adaptability

PROJECTS

Automated Game Player using raspberry pi and servo motors - Designed a servo-controlled gaming system with Raspberry Pi that uses live camera feedback for real-time navigation and converts visual data into automated keyboard inputs.

Shadow casting - Developed a real-time shadow casting simulator using Pygame and Shapely for geometric calculations, incorporating dynamic player control with mouse input for interactive environments.

ASCII Art Video Converter - Created a tool that converts video frames into ASCII art using ffmpeg and Python. The project automates the conversion and playback of videos as ASCII art in real-time, combining multimedia processing with creative visual output.

AI-Powered Workflow Assistant - Developed a script integrated with my window manager to serve as a personal assistant, automating text summarization, task management, and media streaming. It includes AI-driven content suggestions and key bindings for an efficient, hands-free workflow.

Minimalistic Display Driver for RISC-V 16x16 LED Matrix - Developed a shell script-based interpreter to convert .png images into a format compatible with a 16x16 LED matrix for RISC-V simulators using ImageMagick.

RFID Security Mechanism - Developed a dynamic RFID card ID-changing system to prevent cloned cards from being used, with real-time alerts for unauthorized access and detailed access logs for security auditing.

Image encryption - Developed an image encryption tool using OpenCV by embedding pixel coordinates (x, y) and their inverse (width-x, height-y) into the R, G, B values to create a layered encryption system, where each layer must be decrypted in sequence for secure transmission.

Steganography - Implemented a custom steganography technique to covertly embed text within images by encoding 3 bits of data per pixel, using 2 pixels (6 bits) to represent a character. The method minimizes visible color distortion, ensuring discreet data insertion while maintaining image integrity..

USB rubber ducky using Raspberry pi - Configured Raspberry Pi Zero 2 W in USB gadget mode to spoof an Apple Magic Keyboard, undetected by the host. Developed a custom scripting language for rapid, precise input, enabling automation and advanced scripting capabilities.

EXTRA-CURRICULAR ACTIVITIES

- Actively participate in hackathons with notable rankings:
  - Hackezee 2022: Top 10
  - Graviton 2023: Top 10
  - Synapse 2023: Top 10
  - Psychathon 2022: First Prize
- Showcase projects on GitHub, including a variety of tools and automation scripts, with a focus on computer graphics and cybersecurity. Visit my repository here.