CHINMAY KRISHN ROY

Pune, Maharashtra, IN 411041 • +91 9471263623 • chinmaykrishnroy@gmail.com • LinkedIn • GitHub

SUMMARY

Initiative-taking and self-taught Computer Science student with a passion for coding and a sturdy foundation in Python, Operating Systems, and software development. Proven ability to quickly learn and apply complex concepts, with firsthand experience in developing automation systems, web applications, and machine learning models. Committed to continuous learning and staying updated with industry trends.

EDUCATION

SAVITRIBAI PHULE PUNE UNIVERSITY: Smt. Kashibai Navale College of Engineering — 2021 – 2025
Bachelor of Engineering in Computer Science and Engineering — Current CGPA: 8.17

EXPERIENCE

INDIAN RAILWAYS: Mumbai, IN — Feb 2024 – Mar 2024
IoT and Edge ML Intern

- Spearheaded the deployment of an IoT-driven real-time monitoring system for train compartment pressure, significantly improving data accuracy and operational reliability.
- Integrated advanced microcontrollers and communication modules, enabling seamless and efficient data acquisition across the entire system.
- Designed and implemented a robust software solution for sensor data analysis, delivering a highly intuitive and efficient user interface.
- Enhanced railway operational efficiency and safety by leveraging innovative IoT and Edge ML technologies for real-time decision-making and automation.

PROJECTS

BITROID-DM: GUI BitTorrent Client using Python — Aug 2024

- Developed a feature-rich torrent client, BitroidDM, utilizing libtorrent, Python 3.12, and PySide6.
- Integrated a snowfl-based torrent search engine for efficient and anonymous torrent discovery.
- Leveraged multithreading to ensure seamless downloads and a complete media player for in-app content playback.
- Optimized the client for performance and stability, ensuring smooth handling of large torrents and multiple concurrent tasks.

DECHORD: A Real Time Music Analysis Tool — June 2024

- Created DeChord, a real-time GUI based music analysis tool utilizing Python 3.11, NumPy 2.34, and Madmom, achieving 95% accuracy in chord and BPM detection.
- Implemented advanced RNN and CRNN models from the Madmom library, leveraging LSTM networks for precise beat tracking and chord recognition.
- Utilized chroma feature extraction and multimodal fusion techniques, enhancing harmonic content analysis with 90% precision.
- Designed a modern, intuitive GUI with PyQt5, optimized for performance using multithreading, ensuring seamless offline operation.
- Achieved high accuracy in real-time music analysis, suitable for live environment.

QTUBE: A YouTube Downloader and Player — June 2024

- Built QTube, a versatile YouTube downloader and media player using Python 3.11, PyQt5, the YouTube API, yt-dlp and ffmpeg with a modern GUI with different themes.
- Implemented a feature-rich desktop application with support for various download qualities and formats with ability to download media at the highest quality available, ensuring flexibility for users.
- Extended functionality with a web-based version with responsive web GUI using Flask and WebSockets, providing access to core features through a responsive interface.

SMART ASSISTANT: An Offline Voice-Activated Home Automation System Mar 2024

- Designed an offline voice assistant using Arduino Nano BLE Sense, PicoVoice Rhino model, and Porcupine model, achieving 95% accuracy in wake word detection and command recognition.
- Implemented wake word detection and speech-to-sentiment conversion for seamless interaction with appliances like fans, lights, and more.
- Enabled advanced features such as toggling, timers, and scheduling across different household areas, enhancing automation.
- Created a scalable system architecture suitable for expanding to additional appliances and household zones.

GESTURE-BASED HID: Gesture-Based Control System using Python Jan 2024

- Created a gesture-based control system using Python, OpenCV, and MediaPipe for real-time recognition of 5 hand gestures.
- Achieved over 90% accuracy in gesture detection using the MediaPipe Hands model with Euclidean distance calculations for key landmarks.
- Integrated PyAutoGUI and Pycaw, enabling hands-free control of system volume and media functions.
- Designed the system for real-time operation with a standard 30 FPS webcam.

AUTONOMOUS VEHICLE: Incorporating Computer Vision and Real-Time Decision-Making Nov 2023

- Developed an autonomous robot equipped with Mecanum wheels for omnidirectional movement, powered by a Raspberry Pi Pico W and HuskyLens to performs tasks such as face tracking and object detection with real-time learning capabilities and over-the-internet control.

LEADERSHIP

STES AUTO-DRONES: Sinhgad Technical Edu. Society Sep 2023 – Apr 2024

President

- Led a team in integrating computer vision on drones and vehicles, optimizing real-time image processing with Nvidia Jetson Nano and Kendryte K510 among other processors.
- Supervised the application of AutoCAD and TinkerCAD, guiding the team to streamline drone development.
- Guided a team in a national-level Autonomous Drone competition by SAE India, achieving successful outcomes.
- Pioneered the use of flight computers on drones for enhanced autonomous capabilities during in-flight tasks.

SKILLS

PROGRAMMING LANGUAGES: Python, JavaScript, C++, Java
FRAMEWORKS/LIBS: Flask, Django, PySide6, PyQt5, Scikit-Learn, OpenCV, TensorFlow, MediaPipe, Node.js
TECHNOLOGY: API design, Web Development, Machine Learning, Deep Learning, Linux, Git
DATABASES: MySQL, SQLite
LANGUAGES: Hindi (Native), English (Fluent), Marathi (Elementary), Spanish (Elementary)

CERTIFICATIONS

- Journey to Cloud: Envisioning Your Solutions - IBM Apr 2024
- Getting Started with Enterprise-grade AI - IBM Apr 2024
- Getting Started with Threat Intelligence and Hunting - IBM Apr 2024
- Basics of Quantum Information - IBM Apr 2024
- Python 3.4.3 - IIT, Bombay Dec 2022