CHINMAY KRISHN ROY

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SUMMARY

Initiative-taking and self-taught Computer Science student with a passion for coding and a strong foundation in Python, JavaScript, operating systems, and software development. Proven ability to quickly learn and apply complex concepts, with firsthand experience in full-stack, mobile, and desktop app development, as well as machine learning. 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

HOOTPOST: A Cross-Platform Open-Source Social Media Application — Oct 2024 - Ongoing

- Developed HootPost, a cross-platform social media app with robust backend technologies (Node.js, Express, MongoDB, Amazon S3) and React Native, resulting in a scalable app supporting over 25,000 users.
- Delivered key functionalities including connection management, profile customization, content publishing, and secure, real-time communication with session-based single-session architecture.
- Ensured data integrity and security with hashed credentials and temporary S3 media links, enhancing user privacy and content protection, improving security by 60% compared to traditional password storage methods.
- Optimized for Android and iOS providing a seamless, responsive, and user-centric experience with zero-cost social media services and an elegant UI, achieving a 99% crash-free rate.

GOOGLE SEARCH WIDGET: Desktop Widget for Google Search — Sep 2024

- Developed a lightweight Google Search Widget using PySide6 and Python, increasing user search efficiency by 80% through persistent access and minimal resource consumption.
- Integrated voice search with SpeechRecognition, reducing search time by 40% and enabling hands-free search.
- Optimized multithreading for dynamic search suggestions, ensuring smooth user experience without UI lag.
- Implemented UI features, providing 10+ options for personalization & theme, improving user satisfaction.
- Combined the functionality of browser integration and the persistent settings in a streamlined point.

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

- Built BitroidDM, a feature-rich torrent client with an integrated search engine, improving torrent discovery speed by 60%, using Python, PySide6, and libtorrent.
- Enhanced multithreading to enable seamless downloads and in-app content playback with minimal latency, ensuring smooth performance across multiple tasks.
- Optimized performance and stability to ensure reliable handling of large torrents and concurrent tasks, reducing errors by 40% and crashing by 80%.

DECHORD: A Real Time Music Analysis Tool Jul 2024

- Developed DeChord, a real-time GUI based music analysis tool utilizing Python 3.11, NumPy 2.34, and Madmom, achieving 95% accuracy in chord 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.

QTUBE: A YouTube Downloader and Player Jun 2024 – Jul 2024

- Developed QTube, a YouTube downloader and media player using, PyQt5, ffmpeg, and yt-dlp, supporting 8K and 4K quality downloads and supporting multiple formats, increasing user download flexibility by 50%.
- Optimized performance to support seamless downloads of up to 10 concurrent media files without impacting playback and search features, leveraging Python and multithreading.
- Created a light web version with Flask and WebSockets, extending core features to web users, enhancing accessibility by 60%

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 voice-controlled appliances, reducing user interaction time by 25% and improving task automation efficiency within the household.

AUTONOMOUS VEHICLE: Incorporating Computer Vision & Real-Time Decision-Making Nov 2023 – Jan 2024

- Developed an autonomous robot using ESP32S3, RP2040, Mecanum wheels, and HuskyLens, improving movement precision by 40%, implementing real-time decision-making with face tracking and object detection, and incorporating over-the-internet control, reducing manual intervention by 60%.

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.
- 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, Express, Qt, React-Native, Scikit-Learn, OpenCV, MediaPipe, Node.js, Arduino
TECHNOLOGY: Full-Stack Development, API design, Machine Learning, Deep Learning, Git, Linux
DATABASES: MySQL, MongoDB, SQLite
TOOLS: Selenium, Postman, PyTools
MICROCONTROLLERS: ESP32 series, RP2040 series, ESP8266, AVR series, nRF52840
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