Manas Pandey

Linkedin | Portfolio | Github | Phone | E-Mail

PROFESSIONAL SUMMARY

Engineer driven to solve complex hardware-level software challenges. Proven builder of intelligent systems for wireless, AI, and autonomous applications.

EDUCATION

MANIPAL UNIVERSITY JAIPUR

Bachelor of Technology, electronics and communication engineering

Sep 2021 - Nov 2025 | Jaipur, IND

SKILLS

PROGRAMMING & DEVELOPMENT:
Python, C/C++, MATLAB, HTML/CSS, SQL, Git.

DATA & AI:
Machine Learning, Deep Learning, Computer Vision, Data Analysis, Predictive Modeling, NLP, Reinforcement Learning, OpenCV, PyTorch, TensorFlow, Keras, ScikitLearn, Fast API, Streamlit.

ELECTRONICS & EMBEDDED SYSTEMS:
PCB Design, IoT, ROS, Arduino, Raspberry Pi, Micro-controllers, Signal Processing, RF Circuit Design, Software-Defined Radio (SDR), GNU Radio, MATLAB Simulink, CST Suite.

CERTIFICATIONS

- Power Electronics, University of Colorado Boulder
- IBM Generative AI Engineering, IBM
- MATLAB Programming for Engineers and Scientists, Vanderbilt University
- IBM Deep Learning with PyTorch, Keras and Tensorflow, IBM
- MLOps | Machine Learning Operations, Duke University
- IBM Data Science, IBM
- DeepLearning.AI TensorFlow Developer, DeepLearning.AI
- Foundation of Ethical Hacking, Udacity

PUBLICATIONS

Experimental Investigation on Spectrum Sensing Testbed Using GNU Radio and SDR, Springer Nature, May 2023

WORK EXPERIENCE

RESEARCHER | MUJ

Feb 2022 - Jun 2023 | Jaipur, IND

- Implemented energy detection-based spectrum sensing using Software-Defined Radio (SDR) and GNU Radio, creating a flexible testbed for cognitive radio research.
- Overcame challenges including processing delays, false alarms, misdetections, and weak signal detection through algorithm development and testing.
- Conducted statistical data analysis on experimental results to validate system effectiveness and scalability.

TECHNICAL PROJECTS

HTTP-SERVER

Python • Web Server • Non-blocking I/O • Event-driven Architecture

- Developed a non-blocking, event-driven HTTPS/WSGI web server for scalable, concurrent request handling.
- Implemented core asynchronous I/O features, including request parsing, response generation, and network error handling.

DBLITE

Python • In-Memory Database • Data Structures • Concurrency

- Created a lightweight, in-memory Redis-like database in pure Python, supporting data structures including strings, lists, hashes, sets, and key expiry with optional gevent concurrency.
- Optimized for performance in resource-constrained environments, enabling fast data operations and persistence simulations.

GITLITE

C++ • Version Control System • Git • SHA-1 Hashing • Zlib Compression.

- Built Git functionalities, including blobs, trees, commits, SHA-1 hashing, and zlib compression for version control.
- Simulated repository management to track changes and maintain history, showcasing low-level systems programming skills.

C-LIKE

Python • Language Interpreter • Parser • AST

- Implemented a Python interpreter for a custom C-like language, featuring lexer, recursive-descent parser, abstract syntax tree (AST), semantic analyzer, and call stack management.
- Enabled execution of structured code, demonstrating compiler design and language processing principles.

BARECODEX

C++ • Video Codec • Compression Algorithms • YUV420 • Zlib.

- Engineered video codec in C++, converting raw RGB video to YUV420, applying delta encoding, and compressing with DEFLATE (zlib).
- Demonstrated video compression fundamentals, reducing file sizes while maintaining quality for multimedia applications.

FLEXIBLE MICROSTRIP PATCH ANTENNA

Antenna Design • RF Engineering • Simulation • Fabrication

- Designed and simulated a flexible microstrip patch antenna for wireless communication, optimizing for performance in bendable applications.
- Utilized tools like CST Suite for electromagnetic simulations and testing.