

RAPETI HARSHAVARDHAN

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TECHNOLOGIES AND LANGUAGES

Languages C++, Python, Bash, Rust, Javascript
Frameworks JUCE, TensorFlow, matplotlib, numpy, pandas

OS Debian, LinuxMint
Tools Git, CMake(with Make), GDB, Valgrind

PROJECTS

Warmer repo

Feb 2024 – Jun 2024

Open-source Node Based Audio Soft Synthesizer Builder with over 45 Unique Nodes, written in C++ using JUCE Framework.

- Implemented Dynamic Topo Sorters and Graph Solvers that can Process Real time Audio in a lock Free Multi threaded Environment.
- Implemented over 15 Different kinds of FFT and Non-FFT based DSP Algorithms including digital filters.
- Implemented Efficient serialization and deserialization using XML files to save and load graph state.
- Utilized advanced C++ features (e.g., templates, STL, multithreading, callbacks, polymorphism) to optimize performance and enhance scalability and readability.
- Technologies : C++, CMake(Make, Mingw-w64), JUCE Framework, GDB, valgrind, Git

SynthBite16 repo

Nov 2023 – Jan 2024

A 16-bit computer Designed and implemented in Logisim.

- A reprogrammable computer with 38 Instructions, 2 Addressing Modes and Register Stack which can be Simulated.
- Created an efficient instruction format for the counter, optimizing the use of 16-bit word divided into 4 nibbles.
- Designed an exclusive assembly language for the computer and developed an assembler for it.
- Technologies : Logisim, Git, C++

FerrumML repo

Jan 2023 – Nov 2023

A Collection of ML Algorithms written in Rust.

- Implemented Neural Networks, K-means Clustering, Gaussian and Multinomial Naive Bayes.
- Tested the models with datasets like Iris, House cost predictions and some Mathematical Curves, acheived over 90% accuracy.
- Developed high-performance tokenizers for UTF-8 text capable of processing one million tokens in under three milliseconds.
- Technologies : Rust, rs-rayon

JuliaPlot repo

Jan 2024 – Feb 2024

Developed an interactive web application that plots the Julia set using WebGL and JavaScript

- Design and implement creative vertex and fragment shaders in GLSL.
- Utilized JavaScript to create an interactive user interface, allowing users to manipulate parameters and visualize different Julia set variations in real-time.
- Implemented advanced features such as zooming, panning, and dynamic color schemes to enhance user interaction and visual appeal.
- Technologies : WebGL, Javascript, GLSL

FerrumDF repo

Jan 2023 – Feb 2023

CSV to data-frame parser and utility written in Rust.

- Implemented features like Encoding discrete types, Efficient File loading with buffered reading.
- Consise and flexible implementation of Summarising, Modifying and expanding the data-frame.
- Published as a crate in crates.io

EDUCATION

BIT Mesra

Oct 2022 – Present

Bachelor of Technology in Artificial Intelligence and Machine Learning

Cgpa : 7.48

ACADEMIC CLUBS

Society for data science

Jan 2023 – Present

Member

Google Developers student club

Nov 2023 – Present

Member