Saurav Kumar Roy

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EDUCATION

Amrita Vishwa Vidyapeetham, Amritapuri,

09/2023 - Present

Amrita Vishwa Vidyapeetham, Amritapuri CGPA-8.27

OPEN SOURCE

Stingray

06/2024 – Present | Remote

- Replaced numpy.fft with scipy.fft to enhance computation speed of Fast Fourier Transform
- o Added method to smooth a light cur

SunPy

06/2024 - Present | Remote

- Added method to retrieve spacecraft location from NASA's Satellite Situation Center API
- o Implemented Solarnet client to fetch data from Solarnet Virtual Observatory

PROJECTS

JWST Light Curve and Spectral Analysis ∅

 Plotted light curves and planet spectra of WASP-39b from James Webb Space Telescope's NIRSpec data using Astropy and Matplotlib, and confirmed the presence of carbon dioxide, water and other compounds using atmospheric retrieval

Diffusion-based poem generator \mathscr{D}

A diffusion-based text generator to generate poems The latent diffusion dataset was taken from Kaggle, and NVIDIA's Sana model was used to train the diffusion model

Get The Text *⊘*

Built an LSTM and CTC model using PyTorch to extract text from images The dataset was made using the trdg library, which is a synthetic data generator

A Maze ∅

Developed a maze-solving algorithm using reinforcement learning (Q-learning) where the maze was a randomly generated Numpy array with the first index and starting point, and the last one being the finish line. The algorithm was built using plain Numpy.

MolGan ∅

Implemented MolGAN, a generative adversarial network (GAN) for small molecular graphs, using PyTorch.The model was trained to generate chemically valid compounds with desired properties by combining a GAN with a reinforcement learning objective..

Goldbach function approximation \mathscr{D}

Attempted to approximate the Goldbach function using machine learning techniques such as neural networks and curve fitting. The dataset was manually generated, and each number was converted into a feature vector of length 42 consisting of the number in binary, ternary, quaternary, log of the number, and a normalized version using a min-max scaler.

VOLUNTEER EXPERIENCE

Clean-Up Drive Participant

Vallikavu, Kerala, 2024

Participated in a community clean-up drive around Vallikavu, Kerala, to promote environmental sustainability

SKILLS

Languages — C, Python, JavaScript, **Technologies** — Git, TensorFlow, PyTorch, Hugging Face Transformers, NumPy, SciPy, Matplotlib, Pandas, | Astropy, SunPy, linux