Saurav Kumar Roy

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Education

Amrita Vishwa Vidyapeetham, Amritapuri *Sept 2023 – Present*
B.Tech in Electrical and Computer Engineering

- GPA: 8.27

Experience

Open Source *Remote, June 2024 – Present*
SunPy

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

Open Source *Remote, June 2024 – Present*
Stingray

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

Projects

JWST Light Curve and Spectral Analysis *GitHub*

- 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

Goldbach_function_approximation *GitHub*

- 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.

Get The Text *GitHub*

- 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 *GitHub*

- 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 last one being the finish line. The algorithm was built using plain Numpy.

MolGan *GitHub*

- 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..

Volunteer Experience

Clean-Up Drive Participant *Vallikavu, Kerala, 2024*

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

Technologies

Languages: C, Python, JavaScript

Technologies: Git, TensorFlow, PyTorch, Hugging Face Transformers, NumPy, SciPy, Matplotlib, Pandas, Astropy, SunPy,linux