Praful Gulani

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Open Source Contributions

Matplotlib | *Python, Matplotlib* GitHub

- Resolved an issue where the color limits set via `set_clim()` were not updating correctly after modifying the limits (range), causing inconsistent norm values.
- Fixed the issue by ensuring the "changed" callback was triggered only after both `vmin` and `vmax` were properly updated.
- Wrote a test to verify that only a single callback was emitted when `set_clim()` was called.

Projects

Spam Email Classification | *Python, scikit-learn, PyTorch, Transformers, BERT* GitHub

- Explored statistical models (Naïve Bayes, Logistic Regression) and embedding-based models (BERT) for spam detection.
- Preprocessed text using lemmatization, stopword removal, and TF-IDF vectorization.
- Evaluated models using accuracy, precision, recall, and F1-score on real-world email datasets.
- Demonstrated the superior contextual understanding of transformer models over classical approaches.

Genome-Based Creature Simulation | *Python, NumPy, XML, PyBullet* GitHub

- Simulated creature locomotion using a genome-driven architecture with motorized joints and dynamic link expansion.
- Implemented Pulse and Sine motor models with control over amplitude, frequency, and waveform type.
- Calculated movement-based fitness using distance, elevation, efficiency, and structural penalties.
- Generated robot structures in XML format for visualization and evaluation.

Terminal-Based Weather App | *C++, CSV Parsing, Terminal Plotting, OOP* GitHub

- Built a C++ terminal app to parse and visualize weather data from CSV files using candlestick-style ASCII plots.
- Designed a menu-driven interface with features like help, country code lookup, data filtering, and plotting.
- Parsed CSV headers to extract country codes and supported custom date range filtering for selected countries.
- Used red/green terminal plots to show temperature trends based on daily, monthly, or yearly changes.

Light Years Game | *C++, OOP, SFML, Game Development* GitHub

- Built a complete 2D game using C++ and the SFML library, applying real-time rendering and event handling.
- Implemented game architecture using OOP principles like inheritance, encapsulation, and polymorphism.
- Designed and integrated gameplay features including player movement, collision detection, and game states.

Technical Skills

Languages: Python, C++, JavaScript, SQL
Web Technologies: HTML, CSS, Bootstrap
Libraries and Frameworks: NumPy, pandas, Matplotlib, Seaborn, TensorFlow, scikit-learn
Developer Tools: Git, GitHub, WSL, Linux, VS code, Visual Studio, PyCharm, Jupyter Notebook
Concepts: Data Structures and Algorithms, Object-Oriented Programming, Artificial Intelligence, Machine Learning, Deep Learning, Natural Language Processing, Relational Databases, Web Development

Education

Goldsmiths, University of London Oct 2021 - Sept 2025

B.Sc. in Computer Science (Distance Learning) *Indore, India*

- Key Modules: Machine Learning, Artificial Intelligence, Natural Language Processing, Data Science, Software Design, Agile Projects

Certifications and Courses

- Open Source Software Development, Linux and Git - Coursera
- Machine Learning Specialization - Andrew Ng (Audited on Coursera)
- Data Structures and Algorithms - Udemy
- Learn C++ and Make a Game from Scratch - Udemy