No Man's Sky Interactive 3D Galaxy Map

Using Computer Vision to Extract Galactic Coordinates from Screen Captures

Plotting Personal & Collective Explored Space in 3D Space

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CSCI 490

Capstone Project

Content 2

PROBLEM

- As an NMS player, I would like to be able to visualize both the parts of the in-game galaxies I have personally explored, and the parts of the galaxy explored by the community as a whole.
- I want to be able to visualize this massive scale of information in a way that is clean, intuitive, and visually compelling.

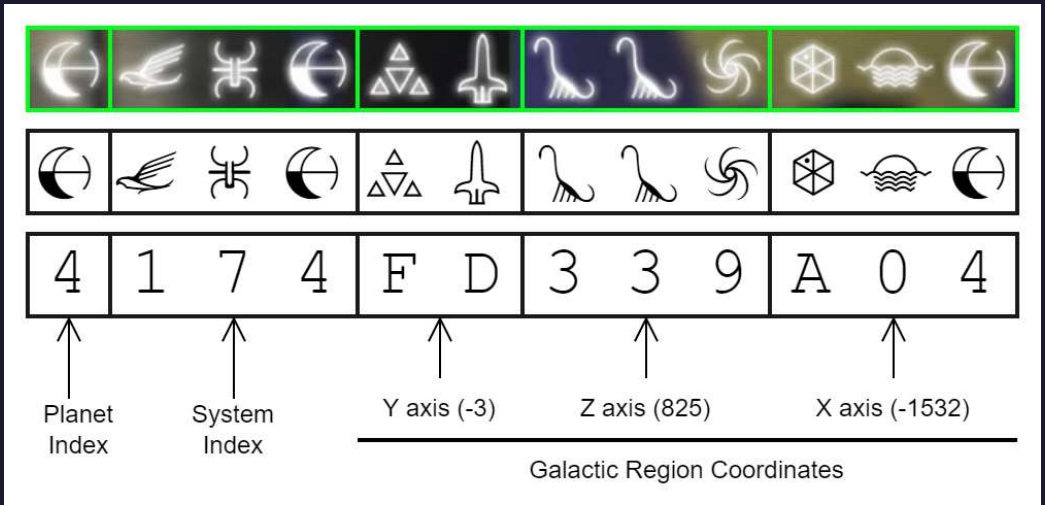
ARCHITECTURE

- Python
  - Pandas, Numpy
  - PyTorch
  - Plotly Dash
- TensorFlow / OpenCV
- Nvidia RAPIDS suite
  - for GPU acceleration
- Django (or React)
- HTML/JS/CSS
- Bootstrap / Material
- Docker

GROWTH AREAS

- Deeper dive into computer vision
- New tools I've been wanting to try
- Neural Network / Transformer
- 3D Point Cloud Visualization practice
- Web Scraping & Processing
- Large scale, dynamic implementation
- Additional UI/UX practice

No Man's Sky has a unique feature with its screen captures. When a screen capture is recorded in a specific way, coordinates are overlaid in the bottom left corner. These coordinates use in-game symbols that constitute a hexadecimal number system.



Using computer vision via neural network or transformer, I will extract these symbols from screenshots, convert them to their hexadecimal equivalent, and extract X, Y, and Z coordinates from the last 8 digits.

Using this method, I will construct interactive maps of space I have personally explored.

I will then scrape r/NMScoordinateexchange for similar images to construct a map of that sample of collectively explored space.

If all else goes well, I will then construct a dashboard style web interface to allow others to use this tool.