# Step-by-Step Guide to Set Up a New Workspace

1. Clone or Open the SpaceDebris Repository
   1. If you haven’t cloned the repo yet:
      1. Open Git Bash and run these commands *(You can also use the Git gui, the key on this step is a opening you bash up and changing the directory to where SpaceDebris is cloned.)*

git clone <https://github.com/oehamilton/SpaceDebris>

cd SpaceDebris

* 1. Open VS Code and select File > Open Folder, then choose the SpaceDebris folder.
  2. **Time:** 2-5 minutes.

1. Create Project Structure (You can do this in file explorer)
   * data/ # Satellite images (from SpaceNet or Kaggle)
   * models/ # Trained CNN models
   * src/
     + presprocssing.py # Data preprocessing (pandas, OpenCV)
     + train\_model.py # CNN training (TensorFlow)
     + api.py # Flask API for predictions
     + frontend/ # React dashboard
     + cloud/ # AWS scripts (boto3 for S3/SageMaker)
   * notebooks/ # Jupyter notebooks for experimentation
   * README.md # Project documentation
   * requirements.txt # Python dependencies
   * documentation/ # Store documentation about project
2. Create a new VS Code Workspace (VS Code)

Why Use a Workspace for SpaceDebris?

* 1. Isolation: Keeps your spacedebris environment, AWS Toolkit settings, and React snippets separate from other projects.
  2. Portability: The .code-workspace file can be committed to your GitHub repo (https://github.com/oehamilton/SpaceDebris), making it easy to share or reuse.
  3. Efficiency: Preconfigures VS Code for Python ML (TensorFlow), web development (React, Flask), and AWS

In VS Code, with the SpaceDebris folder open, go to File > Save Workspace As....

1. Choose a location and name for the Workspace file:
   * 1. **Recommended**: Save it inside the SpaceDebris folder as SpaceDebris.code-workspace (e.g., /path/to/SpaceDebris/SpaceDebris.code-workspace).
     2. This keeps the Workspace file with the project and allows you to commit it to GitHub.
2. VS Code will create a .code-workspace file and switch to Workspace mode (you’ll see “SpaceDebris [Workspace]” in the title bar).

A screenshot of a computer

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1. **Time**: 1-2 minutes.
2. VS Code Extensions
   1. Add Prettier - Code formatter extension to VS Code
   2. Python (ms-python.python): For Python support.
   3. Jupyter (ms-toolsai.jupyter): For notebooks in notebooks/.
   4. AWS Toolkit (amazonwebservices.aws-toolkit-vscode): For S3/SageMaker.
   5. React Snippets (dsznajder.es7-react-js-snippets): For React development.
   6. ESLint (dbaeumer.vscode-eslint): For JavaScript linting.
   7. GitLens (eamodio.gitlens): For enhanced Git integration.
3. Setup Python (Git Bash)
   1. Navigate to SpaceDebris

cd /c/users/oeham/OneDrive/Documents/code/SpaceDebris

* 1. Validate the python version 3.11.9

python - - version

* 1. Create/Confirm Virtual Environment

python -m venv venv

* 1. Activate the environment

source venv/Scripts/activate

* 1. Validate isolated environment

pip list

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* 1. Upgrade pip

python.exe -m pip install --upgrade pip

* 1. Add core packages to the python environment

pip install tensorflow==2.15.0

pip install pandas==2.2.2

pip install opencv-python==4.10.0.84

pip install matplotlib==3.9.2

pip install flask==3.0.3

pip install boto3==1.35.24

pip install pylint

pip install flask-cors

pip install gunicorn

pip install waitress

pip install earthengine-api

pip install geemap

* 1. Update requirements.txt (should list everything within the python environment)

pip freeze > requirements.txt

* 1. Commit Base Line Environment