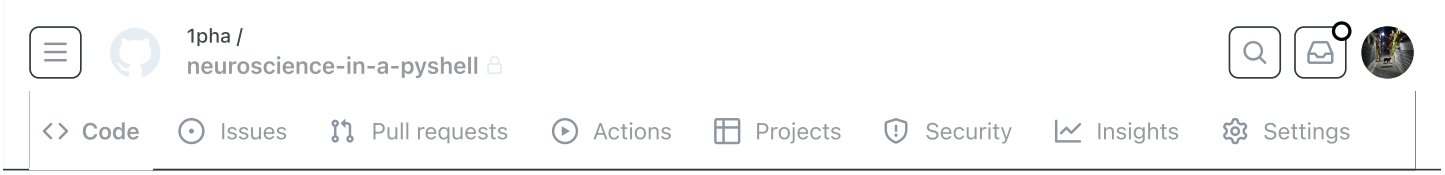

Tutorial repository bridging neuroscience and coding. It provides resources for coders new to neuroscience on preprocessing MRI scans, and for neuroscientists new to PyTorch on foundational neural network coding. The focus is beginner-friendly examples to get started with PyTorch for neuroimaging analysis

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1pha Nah 9fcf0f8 · yesterday

1_Preliminaries	Nah	yesterday
2_Preprocessing	Nah	yesterday
3_BrainsToPython	Nah	yesterday
4_Misc	Nah	yesterday
assets	Nah	yesterday
.gitignore	Initial commit	3 months ago
LICENSE	Initial commit	3 months ago
README.md	Nah	yesterday

README Apache-2.0 license

Neuroscience in a Pyshell

Introduction

This is a comprehensive tutorial repository designed to bridge the gap between coding and neuroscience. Whether you're a coder new to the field of neuroscience or a neuroscientist looking to improve your PyTorch skills, this repository has something for everyone. I do agree that there should be a unification of processing neuroimages and this repository is not about unifying the diverged processes but rather introducing all possible methods

Purpose

This repository aims to provide a comprehensive set of resources for individuals working with MRI scans. It covers various aspects of neuroimaging data preprocessing, analysis, and visualization, all while leveraging the power of PyTorch, a popular deep learning library.

Background

As a student researcher exploring deep learning explainability with medical images, I encountered challenges in preprocessing brain MRI data due to my lack of neuroscience background. This repository is a culmination of the experiences and solutions I discovered during my journey. Additionally, recognizing the need for neuroscientists to become proficient in Python deep learning frameworks, I have included basic PyTorch coding skills tailored for those new to this domain.

Contents

This repository contains a wide range of tutorials, examples, and code snippets that cover the following topics:

- **MRI Data Preprocessing**: Learn how to handle and preprocess MRI scans, including tasks such as skull stripping, motion correction, and normalization. These tutorials are based on my personal experiences and challenges faced during my research.
- **Visualization Techniques**: Discover techniques for visualizing neuroimaging data, including brain surface rendering, activation maps, and connectivity matrices.

Contributing

We welcome contributions from the community! If you have any suggestions, bug fixes, or new tutorials to share, please feel free to open an issue or submit a pull request.

Disclaimer

Being a non-native English speaker, I have used generative AI models to refine my English writing; however, the tutorials themselves *are not* generated content but rather my own work and experiences.

Contact

If you have any questions or need further assistance, please feel free to reach out to:

Releases

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Languages

- Python 100.0%

Suggested workflows

Based on your tech stack

Django

Build and Test a Django Project

Configure

Python package

Create and test a Python package on multiple Python versions.

Configure

SLSA Generic generator

Generate SLSA3 provenance for your existing release workflows

Configure

More workflows

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