SimFDASEE

Description

This repository contains the code for the simulation study presented in the article "Robust Functional Data Analysis for Stochastic Evolution Equations" by Dennis Schroers.

The simulation study compares the finite-sample performance of the truncated covariation estimator for adjusted increments and nonadjusted increments in the context of a first order stochastic PDE.

Main Files

- `Simulation_Study.R`: Main R script for replicating the simulation study.
- `results/simulation_results_exponential.csv`: Output of the simulation study using the exponential kernel.
- `results/simulation_results_gaussian.csv`: Output of the simulation study using the Gaussian kernel.

Installation

To use the package, install the development version with devtools:

```
# Install devtools if needed
install.packages("devtools")


# Install the package from GitHub
devtools::install_github("yourusername/SimFDASEE")
```

Usage Example

```
library(SimFDASEE)

# Run a small simulation
res <- run_mc_simulation(
  K = 10,
  nx = 101,
  nt = 101,
  kernel = function(h) exp(-abs(h))
)

# View results
print(res$results)
```