
fdasrsf Documentation

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A python package for functional data analysis using the square root slope framework and curves using the square root velocity framework which performs pair-wise and group-wise alignment as well as modeling using functional component analysis and regression.

FUNCTIONAL ALIGNMENT

FUNCTIONAL PRINCIPAL COMPONENT ANALYSIS

GAUSSIAN GENERATIVE MODELS

FUNCTIONAL PRINCIPAL LEAST SQUARES

ELASTIC REGRESSION

SRVF GEODESIC COMPUTATION

UTILITY FUNCTIONS

CURVE FUNCTIONS

References:

Srivastava, A., Wu, W., Kurtek, S., Klassen, E. and Marron, J. S. (2011). Registration of Functional Data Using Fisher-Rao Metric. arXiv:1103.3817v2 [math.ST].

Tucker, J. D., Wu, W. and Srivastava, A. (2013). Generative models for functional data using phase and amplitude separation. Computational Statistics and Data Analysis 61, 50-66.

Joshi, S.H., Srivastava, A., Klassen, E. and Jermyn, I. (2007). A Novel Representation for Computing Geodesics Between n-Dimensional Elastic Curves. IEEE Conference on computer Vision and Pattern Recognition (CVPR), Minneapolis, MN.

Srivastava, A., Klassen, E., Joshi, S., Jermyn, I., (2011). Shape analysis of elastic curves in euclidean spaces. Pattern Analysis and Machine Intelligence, IEEE Transactions on 33 (7), 1415 –1428.

INDICES AND TABLES

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