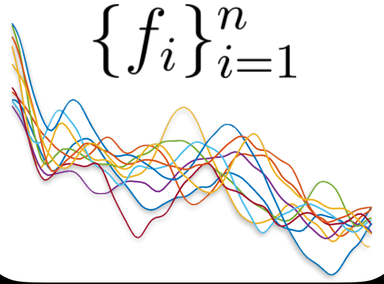
Step 0: Function Alignment

Data

$$\{f_i\}_{i=1}^{n}$$



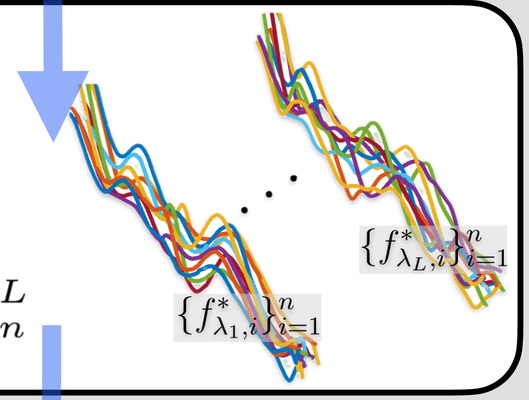
Candidate Parameters

$$\{\lambda_\ell\}_{\ell=1}^{L}$$

Penalized Elastic Alignment

Aligned Functions

$$\left\{f^*_{\lambda_\ell,i}\right\}_{\substack{\ell=1,\ldots,L\\ i=1,\ldots,n}}$$

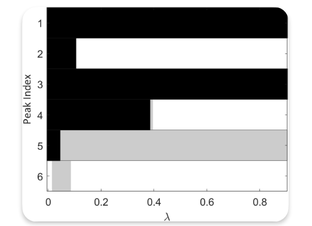


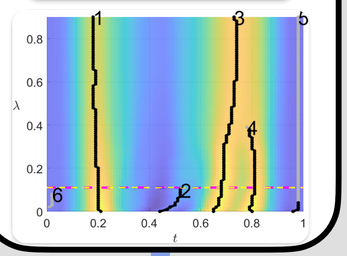
Partial Elastic Mean

$$\{\hat{g}_{\lambda_\ell}\}_{\ell=1}^{L}$$

Step 1: PPD Choose λ^*

PPD





Choose λ^* with criteria

Mean with Optimal λ^*

$$\hat{g}_{\lambda^*}$$

Step 2: Function Estimation

Initialization of Shape Est.

$$\hat{g}_{init}$$

Peak-Constrained Function Estimation

Final Estimate

$$\hat{g}$$