Neural Modes: Self-supervised Learning of Nonlinear Modal Subspaces

Appendix

A. Additional Tables and Figures

Table A1. Analysis of nodal forces on the square sheet example. We compute L1 and L2 norms of nodal forces F and corresponding errors ΔF with respect to ground truth. The norms are normalized with respect to batch size.

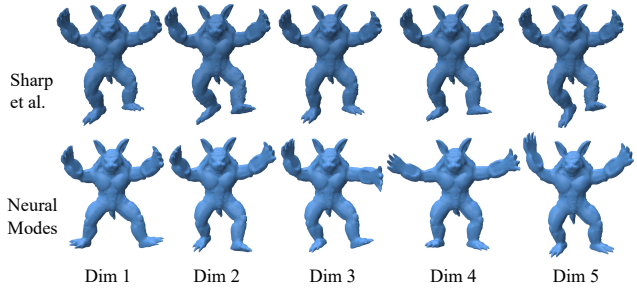| Method ($\times 10^4$)	$\|\Delta F\|_1$	$\|\Delta F\|_2$	$\|F\|_1$	$\|F\|_2$
PCA+AE	111	5.95	279	24
PCA+AE (grid)	83	4.35	250	22
L2 Supervised	125	6.59	293	24
Neural Modes (stoch.)	**31**	**0.93**	**199**	19
Neural Modes (grid)	**25**	**0.74**	**193**	19

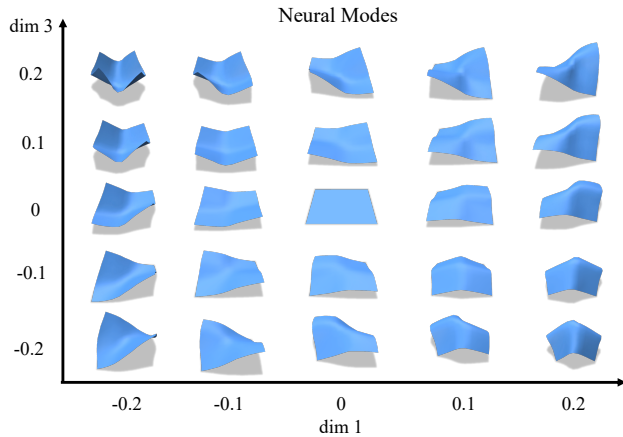Figure A3. Visualization of Armadillo subspace ($d = 5$)

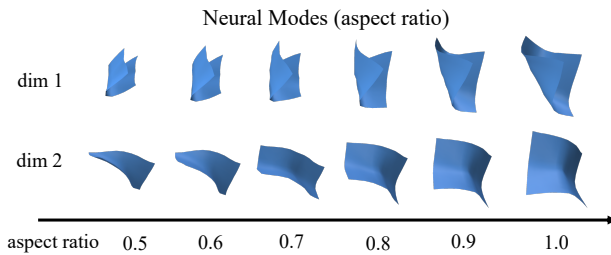Figure A1. Visualization of a two-dimensional Neural Modes slice for the square sheet example.

Figure A2. Visualization of Neural Modes for a rectangular sheet conditioned on different side length ratios.