

Figure J.3. Application of FLODANCE to a multi-output Gaussian process with a Matérn kernel. We generate n = 10,000 spatial locations in \mathbb{R}^2 and as-

sume a d=10-dimensional output per location, resulting in a covariance matrix of size m = nd = 100,000. The covariance structure follows a Matérn kernel with smoothness $\nu = 1.5$ and length scale 0.04, combined with a linear model of coregionalization (LMC) for output covariances. (a) Scale law illustrated by the ratio of successive determinants over increasing submatrix sizes. (b) Logdeterminant prediction using FLODANCE. The black curve (left axis, largely

obscured) is the exact log-determinant ℓ_n computed by MEMDET. FLODANCE

is fitted on $[1, n_s = 10^3]$ (yellow) and extrapolated to $[n_s, n = 10^4]$ (red). The

blue curve (right axis) shows the relative error of prediction, which remains be-

low 0.4%.