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**Title:** VARIATIONAL SPARSE SIGNAL REGRESSION

**Abstract:** Variational methods are a fast alternative to Markov chain Monte Carlo for approximate inference in hierarchical Bayesian models. We describe recent research on variational methods in sparse signal regression contexts such as wide data (" $p \gg n$ ") regression and wavelet nonparametric regression. One potential application is fast simultaneous screening of very many single-nucleotide polymorphism genotypes in genome-wide association studies.