

Distributed sampling for imaging inverse problems in high dimension

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Both optimisation and Bayesian sampling methods are widely used to solve inverse problems. While the former are scalable but only provide point estimates, the latter give statistical information on the solution reliability at a larger computational cost. Recently, scalable optimisation-inspired samplers have been proposed. Among these, the SPlit-and-Augmented (SPA) Gibbs sampler can handle linear operators in parallel without inversion or sub-iterations using client-server communications. In this work, we propose a SPA Gibbs sampler over hypergraphs with a Single Program Multiple Data implementation. We show that the proposed approach is much faster than its client-server counterpart on imaging inverse problems.