

Daniele Tantari:

Inverse problems for structured datasets using parallel TAP equations

We propose an efficient algorithm to solve inverse problems in the presence of binary clustered datasets. This problem has been widely analyzed through various methods as mean field approaches or pseudo-likelihood optimization. Starting from the Hopfield model in a teacher student scenario, our approach is based on the estimation of the posterior using TAP equations in a parallel updating scheme. Differently from standard Boltzmann learning, this method allows to retrieve the exact patterns of the teacher beyond the system's couplings.