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The problem of reconstructing a continuous function based on discrete samples stimulated considerably rich literature. We propose a universal approach for function reconstruction based on repulsive nodes that comes with strong theoretical guarantees and empirical performances. More precisely, we study reconstructions based on nodes that follow the distributions of determinantal point processes adapted to a given reproducing kernel Hilbert space. We prove fast convergence rates that depend on the eigenvalues of the kernel. This unified analysis provides new insights into approximation problems based on determinantal point processes.

*Joint work with Rémi Bardenet and Pierre Chainais (Université de Lille, CNRS, Centrale Lille).*