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New Algorithms for Vector Quantization

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Vector quantization is the classical problem of representing continuum with only a finite number of representatives or representing an initially rich amount of discrete data with a lesser amount of representatives. This problem has numerous applications. The objective of achieving a quantization with mininmal distortion leads to a hard non-convex optimization problem, typically with many local minima. The main problem is thus to find an initial approximation that is close to a "good" local minimum. Once such an approximation is found, the well-known Lloyd-Max iterative algorithm may be used to converge to the nearby a local minimum. In this talk we will describe the problem and present two new approaches to its approximate solution.