Pointwise eigenvector estimates by landscape functions

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Landscape functions are a popular tool used to provide upper bounds for eigenvectors of Schrödinger operators on domains. After reviewing some results obtained in the last 10 years, I will show how several approaches used to achieve such bounds can be unified and extended to a large class of linear and even nonlinear operators. We also use landscape functions to derive lower estimates on the principal eigenvalue - much in the spirit of earlier results by Donsker–Varadhan and Banuelos–Carrol. Our methods solely rely on order properties of operators, which I will briefly remind. As an application, I will show how to derive hitherto unknown lower bounds on the principal eigvenalue of nonlinear Laplacian-type operators on graphs.