I'll discuss ways to construct realistic landscape functions for eigenfunctions $\psi$ of quantum graphs, i.e., metric graphs where a Schrödinger equation operates on the vertices. The term “landscape functions” refers to functions that are easier to calculate than exact eigenfunctions, but which dominate $|\psi|$ in a non-uniform pointwise fashion constraining how $\psi$ can be localized. Our techniques include Sturm-Liouville analysis, a maximum principle, and Agmon’s method, and we make connections both to the potential energy function and the topology of the graph.

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