Analyzing Solutions to the Fermat-Torricelli Problem in Varying Dimensions

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Abstract: The Fermat-Torricelli is an interesting problem with an interesting abstract solution. The question itself asks: can you find a point that defines the minimum sum of the distance between it and a finite number of points in any dimension? In my talk, I will explain not just how to find the general solution for the problem, but we will also look at solutions bound by a number of variables such as the number of finite points, the dimensional space it occupies, the shapes created by the points, and more. We will explore the varying simplicity of these different solutions in contrast to the general one, and the different types of math they use.

Prerequisites: None

References: Mordukhovich, B. S., & Nguyen, M. N. (2014). *An easy path to convex analysis and applications.* San Rafael, CA: Morgan & Claypool.