(Invited Talk) The Saga of the Skyline Points

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Abstract

Skyline points or non-dominated points in a database are those points that are "best" in at least one of their attributes. In spatial databases, interesting implicit attributes are the distances to a given set of sites of interest. We present some history of the problem, and then show how computational geometry helps to transform it into a question about certain Voronoi diagrams with additive weights and a convex-distance function. Finally, we show how to solve the problem for n data points and m sites of interest in time $O((n+m)\log(n+m))$, improving on all previous results that require time proportial to nm.

Biography

Otfried Cheong received his Ph.D. at FU Berlin in 1992. After holding positions at Utrecht University, Postech, Hong Kong University of Science Technology, and TU Eindhoven, he has been at KAIST since 2005. He is on the editorial board of 'Discrete Computational Geometry' and 'Computational Geometry: Theory Applications', and was elected an ACM Distinguished Scientist in 2016. He is currently on leave from KAIST to work with Scalgo on water flow simulations.

36th European Workshop on Computational Geometry, Würzburg, Germany, March 16–18, 2020.