

Epidemic Change Detection via Shifted Maximum Subarrays

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In this talk, I will use a recent project on change point detection to illustrate what statistical research can look like in practice. The problem focuses on detecting short “epidemic” changes in data, a task that is computationally challenging. While classical approaches rely on scan statistics with quadratic computational cost, we develop a nearly linear-time algorithm based on a new connection to shifted maximum subarrays (SMS). This example highlights how combining statistical insight with algorithmic ideas can lead to substantial improvements in both theory and computation.