

Sublinear Computing

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Abstract. Denied preprocessing and limited to a tiny fraction of the input, what can a computer hope to do? Surprisingly much, it turns out. A blizzard of recent results in property testing, streaming, and sublinear approximation algorithms have shown that, for a large class of problems, all but a vanishing fraction of the input data is essentially unnecessary. While grounding the discussion on a few specific examples, I will review some of the basic principles at play behind this “sublinearity” phenomenon.