

In this paper, we develop new fast algorithms for envelope estimation that are stable and can be used in contemporary complex envelope estimation problems. Under the sequential 1D envelope algorithm framework of Cook and Zhang (2015a), we develop an envelope coordinate descent (ECD) algorithm that is shown to be much faster the existing 1D algorithm without loss of accuracy. We also propose a novel class of envelope component screening (ECS) algorithms that serves as a pre-screening step that can further significantly speed computation and that shows promise as precursor methodology when $n \leq p$. Both the ECD and the ECS algorithms have shown promising performance in extensive simulation studies and a real data analysis.