

Novel Computations with Random Matrix Theory and Julia

Alan Edelman, MIT

Over the many years of reading random matrix papers, it has become increasingly clear that the phenomena of random matrix theory can be difficult to understand in the absence of numerical codes to illustrate the phenomena. (We wish we could require that all random matrix papers that lend themselves to computing include a numerical simulation with publicly available code.) Of course mathematics exists without numerical experiments, and all too often a numerical experiment can be seen as an unnecessary bother. On a number of occasions, however, the numerical simulations themselves have an interesting twist of their own. This talk will illustrate a few of those simulations and illustrate why in particular the Julia computing language is just perfect for these simulations. Some topics we may discuss:

“Free” Dice

Tracy Widom

Smallest Singular Value

Jacobians of Matrix Factorizations

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