UTAustinX UT.5.05x
Linear Algebra - Foundations to Frontiers

Help

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12.5.2 The Rayleigh Quotient Iteration

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Calculator

12.5.2 The Rayleigh Quotient Iteration

Reading Assignment

0 points possible (ungraded)

Read Unit 12.5.2 of the notes. [LINK]

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Homework 12.5.2.1

1/1 point (ungraded)

The script in `RayleighQuotientIterationScript.m` illustrates how shifting the matrix by the Rayleigh Quotient can greatly improve how fast the Shifted Inverse Power Method, starting with a random vector, computes an eigenvector. It could be that the random vector is close to an eigenvector associated with any of the eigenvalues, in which case the method will start converging towards an eigenvector associated with that eigenvalue. Pay close attention to how many digit are accurate from one iteration to the next.

To try it out, in the Command Window type

```
>> RayleighQuotientIterationScript
input a vector of eigenvalues. e.g.: [ 4; 3; 2; 1 ]
[ 4; 3; 2; 1 ]
```

☑ done/skip

✔

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ℹ Answers are displayed within the problem

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