ACM/IDS 104 APPLIED LINEAR ALGEBRA
PROBLEM SET 6

Please submit your solution as a single PDF file, that contains both the written-up and published code parts, via Gradescope by **9pm Tuesday, November 21**. An example of the submission process is shown here: `https://www.gradescope.com/get_started#student-submission`

- For theoretical problems, please use a pen, not a pencil: it is hard to read scanned submission written by a pencil.
- For coding problems, please convert your MATLAB livescripts (`.mlx`) to PDF by selecting `Live Editor` → `Save` → `Export to PDF` and merge them with the rest of your solution.
- After uploading your submission to Gradescope, please label all pages.

Problem 1. (10 points) The Power Method (aka von Mises Iteration)
Complete Problem 1 in `PS6.mlx`.

Problem 2. (10 points) Ranking US Airports using PageRank
Complete Problem 2 in `PS6.mlx`.

Problem 3. (10 points) Matrix Diagonalization
Diagonalize the Fibonacci matrix (without using numerical software packages):

$$F = \begin{bmatrix} 1 & 1 \\ 1 & 0 \end{bmatrix}. \tag{1}$$

Problem 4. (10 points) Principal Component Analysis
Complete Problem 4 in `PS6.mlx`.

Problem 5. (10 points) Spectral Method for Graph Partitioning
Complete Problem 5 in `PS6.mlx`.