

ENGI E1006

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Percolation Handout Part 2

Write a Percolation module in Python to solve the *directed percolation* problem we saw in class. Your module should make use of the functions you turned in for Assignment 5 Part 1 and the new ones we designed in class. Specifically:

1. A new `flow_from` function that has as inputs: the `sites` array, the `full` array, and indices i and j .
2. A new `directed_flow` function that takes the `sites` array as an argument and returns a new array indicating which sites are full.
3. A function to visualize the flow in an $n \times n$ grid. Your image should use one color for vacant and unfilled sites, another color for blocked sites, and another color for vacant and filled sites.
4. A function that makes a plot of the percolation probability versus the site vacancy probability.
5. I have provided function definitions in the attached `percolation2.py` file. I have provided a main function to test your code in a separate file `hw5_2.py`. Your code must work with the main function I have provided.