DFT vs. FFT Execution Time Comparison

Time complexity shown on a log-log plot

Legend:
- DFT: fourier_mat ($O(N^2)$)
- FFT: my_fft ($O(N \log N)$)
- NumPy FFT: np.fft.fft ($O(N \log N)$)

Y-axis: Execution Time (seconds)

X-axis: Signal Size (N) — 128, 256, 512, 1024, 2048, 4096, 8192