ECE 278C **IMAGING SYSTEMS** **Winter 2019**

ASSIGNMENT 6: Estimation of Range Profiles

Due: Tuesday, March 12, 6 pm

Name: _____

Each data subset in *Assignment 4* consists of 128 complex samples, corresponding to 128 frequency steps. Suppose we select a good data subset corresponding to one arbitrary data-acquisition position, of which the 128 wavefield samples are denoted as *{g(k)}*.

1. Produce the *range profile* by backward propagation with the phase-only kernel

$$h^*(r) = \exp(-j2\pi r/\lambda_k)$$

2. Produce the *range profile* by the Fourier transform *(DTFT or DFT)* method.

3. Rescale the result from Part (2) to convert it to the range profile and compare to the result from Part (1). (Comparison includes both the magnitude and phase distribution of the range profiles.)