

2015 Quals Questions – Gordon Wetzstein

I usually started with general questions and then adapted the questions a little bit based on how far we got in the 10 minutes and what the areas of the students were.

General Questions for Everyone:

- what are your research interests, what courses are you taking, are you working with any faculty yet?
- signal processing basics:
 - explain the Nyquist-Shannon sampling theorem
 - how to downsample an image (filtering followed by sampling)
 - explain the convolution theorem (convolution in primal domain is multiplication in frequency domain)
 - what is aliasing?

Medical imaging specifics (for people working in that area):

- explain the fourier slice theorem
- what are some of the challenges with metal in MRI/CT

Other questions (for a few students who were working in related areas, but not all students):

- hows does lidar work?
- how does it compare with interferrometry?