

# ECE 5780 Computer Analysis of Biomedical Images: Quiz 1

Name \_\_\_\_\_

Net ID \_\_\_\_\_

1. For a (CAD) clinical study what are the two important properties of a hypothesis?

(a)\_\_\_\_\_ There should be a quantifiable evaluation of algorithm performance.

(b)\_\_\_\_\_ There should a target value for that performance.

2. What are the two requirements for a device for FDA approval?

(a)\_\_\_\_\_ The device must have a health benefit (compared to not using it)

(b)\_\_\_\_\_ This benefit should outweigh any harms caused by the device.

3. In the Suzuki paper (T10)

What were the train/test methodologies?

(a)\_\_\_ Several different small balanced (benign/malignant) training sets, test on remainder. Also, round robin or one-out-of-n evaluation method was used,

How was the data set documented?

(b)\_ For each case the location of the nodule (provided by expert radiologist) and the outcome (malignant/benign from clinical methods) was provided.

What was the input to the CAD algorithm?

(c)\_\_\_ The region of interest (ROI) of the image data surrounding the nodule (19x19 pixels, three image slices)

4. In the Gulshan (T9) (Google paper)

What was the unique output of the CAD system that was presented?

(a)\_\_\_\_\_ Image readability (**image quality** for acceptable reading)

How many cases were used to train the system?

(b)\_\_\_\_\_ 128,175 (correct order of magnitude for credit)

4. For the Mookiah paper (T6) (review paper) give two reasons why it is difficult to directly compare results between different systems that were reviewed.

(a)\_\_\_\_\_ Each study used a different dataset

(b)\_\_\_\_\_ Different evaluation metrics were used