Study FDA-MSKCC 14-head Microscope

On Nov. 3, 2017 Brandon Gallas and Qi Gong visited MSKCC to help Yukako Yagi conduct a study using eeDAP on a 14-head microscope. There were 11 pathologists participating. There were 40 regions of interest (ROIs) where they were asked to detect and mark the locations of mitotic figures. For each ROI, there were candidate mitotic figures identified during a preliminary study. There were 126 candidate mitotic figures in total. The participants were asked to classify these candidates as mitotic figures or not. The study was completed in 2 hours!

Resulting data:

- 12 participants (11 pathologists + 1 non-pathologist; 1 pathologist did not complete)

- Count data: count the number of mitotic figures in ROI
    - 4 slides, 10 ROIs per slide

Mark data: participants marked mitotic figures (circle on paper)
    - 4 slides, 10 ROIs per slide

data: participants scored candidate mitotic figures from 0-100
andidate mitotic figures

We used eeDAP to transcribe this data to electronic form. For the mark data, this was accomplished
within the eeDAP work flow.
file with annotations of the FOV and the ROI.
cope, which refers to xml file created as above.
to WSI within ImageScope, and then saves and closes ImageScope.
ed xml to eeDAP output directory.

scussion under instructions to make decisions independently, and the classifications were confidence
0-100 scale, threshold=50. We believe that there is more information in multi-level scores that can lead
ndidate MFs were identified during a preliminary image curation study where 5 pathologists counted and
0 ROIs. We call them "candidate" MFs because only 21 of 92 were unanimously identified. The
es reflects a spectrum of candidates from obvious and likely MFs to subtle and improbable MFs. In fact,
athologist agreement, we asked one of the image curation pathologists to re-evaluate 12 of the original
ne identified during the original image curation. For this re-evaluation we asked the image curation
. He identified 36 more candidates. This spectrum allows an efficient and effective evaluation of an AI

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d later at lower threshold)

microscope.

al meeting. It outlines the basics: the preliminary study and the 14-head study.
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