Crowds Cure Cancer:
Crowdsourcing ground truth measurements on publicly available imaging data

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Disclosures

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Crowds Cure Cancer

- The Cancer Imaging Archive (TCIA) has troves of image data, which could serve as valuable training sets for improving machine learning algorithms.
- However, these datasets lack consistent lesion annotations.
- Five ITCR-funded groups partnered to develop a web-based crowdsourcing application for gathering lesion annotations.
- The application has been featured at Radiological Society of North American (RSNA) 2017 and 2018 annual meetings.
RSNA 2018

- CCC was located in the AI Community within the Education and Learning Center
- Participants competed to be the top individual or group
- Gamification features were added to increase community participation
RSNA 2018

- Participants were given an anonymous username
  - Asked users to provide imaging experience during registration
- Image reviewers were presented with twelve image collections, which included variety of cancers
  - Lung
  - Melanoma
  - Ovarian
  - Colon…
• Reviewers were instructed to measure and label all metastatic lesions

• They were given the option to provide feedback about:
  • Image quality (e.g., no IV contrast, motion artifact, etc.)
  • Lesion characteristics (e.g. ill-defined, ground glass, etc.)

• Participants received 1 point per measurement
  • Badges and ranks were awarded when criteria were met
The data are currently available for download on the TCIA website:

- RSNA 2017: https://doi.org/10.7937/K9/TCIA.2018.OW73VLO2
- RSNA 2018: 10.7937/TCIA.2019.yk0gm1eb