
RSNA Press Release

RSNA Launches Abdominal Trauma Detection AI Challenge

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OAK BROOK, Ill. (August 7, 2023) — The Radiological Society of North America (RSNA) has launched the “RSNA 2023 Abdominal Trauma Detection AI Challenge” to explore whether artificial intelligence (AI) can be used to aid in the detection and classification of traumatic abdominal injuries.

The international imaging dataset is the first multiphasic dataset that RSNA has assembled for a challenge and is one of the largest and most varied of its kind, including detailed clinical labels, radiologist annotations and segmentations.

“This year’s RSNA AI Challenge is the most ambitious challenge yet, given that it encompasses detection and classification of traumatic injuries across multiple organs,” said Jeff Rudie, M.D., Ph.D., emergency radiologist and Scripps Clinic and adjunct assistant professor in the Department of Radiology at the University of California, San Diego. “Our team has compiled and annotated a broad set of trauma CTs from institutions across six continents. The dataset is annotated at multiple levels, including the presence of injuries in four solid organs with injury grading, image level annotations for active extravasations and bowel injury, and voxelwise segmentations of each of the potentially injured organs.”

Traumatic injury occurs in people of all ages and is a leading cause of death worldwide. Nearly 5 million people die each year as a result of traumatic injury, according to the World Health Organization. Abdominal trauma often causes damage to the internal organs, which may result in internal bleeding and injuries to the kidneys, spleen, liver and bowel. Motor vehicle accidents are the most common cause of abdominal trauma in the U.S. Rapid and accurate detection and classification of injuries is key to effective treatment and favorable patient outcomes.

Researchers hope that AI can assist in expeditiously identifying and classifying traumatic abdominal injuries.

To create the ground truth dataset, the challenge planning task force collected imaging data sourced from 23 sites in 14 countries on six continents, including more than 4,000 CT exams with various abdominal injuries and a roughly equal number of cases without injury.

For the challenge competition, contestants will attempt to develop machine learning models that match radiologists’ performance in detecting, locating and classifying the severity of abdominal injuries.

“The artificial intelligence models developed as part of this challenge have significant potential to advance patient care by assisting radiologists and other physicians to detect and

grade different traumatic abdominal injuries, which is a particularly difficult task, requiring a lot of careful image review,” Dr. Rudie said. “These models may have the potential both to help prioritize positive studies for faster reading and to identify higher grade injuries that might require prompt intervention.”

The [RSNA 2023 Abdominal Trauma Detection AI Challenge](#) is being conducted on a platform provided by Kaggle, Inc., and is open to all researchers. The competition phase will finish in October 2023. The top nine performing competitors will share in a total of \$50,000 in prize money.

Winners will be recognized in the AI Theater during RSNA’s 109th Scientific Assembly and Annual Meeting at McCormick Place Chicago ([RSNA 2023](#), Nov. 26 – 30).

For more information on RSNA AI challenges, visit [RSNA.org/AI-image-challenge](#) or contact informatics@rsna.org.

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RSNA is an association of radiologists, radiation oncologists, medical physicists and related scientists promoting excellence in patient care and health care delivery through education, research and technologic innovation. The Society is based in Oak Brook, Ill. ([RSNA.org](#))