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The LHC Olympics: A Community Challenge for Anomaly Detection in High Energy Physics BENJAMIN NACHMAN, Lawrence Berkeley National Laboratory, GREGOR KASIECZKA, University of Hamburg, DAVID SHIH, Rutgers — A new paradigm for data-driven, model-agnostic particle searches at colliders is emerging, which aims to leverage recent breakthroughs in anomaly detection and machine learning. In order to develop and benchmark new anomaly detection methods within this framework, it is essential to have standard datasets. To this end, we have created the LHC Olympics 2020, a community challenge accompanied by a set of simulated collider events. Participants in these Olympics have developed their methods using an R&D dataset and then tested them on black boxes: datasets with an unknown anomaly (or not). This talk will review the LHC Olympics 2020 challenge, including an overview of the competition, a description of methods deployed in the competition (including those submitted by non-collider physicists), lessons learned from the experience, and implications for data analyses at colliders and beyond.

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