

Low-Power Computer Vision Competition

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Problem to be solved: This is an international competition identifying the most energy-efficient solutions for running computer vision. In 2015-2019, the vision tasks were object detection and classification of images. Starting from 2020, this competition expands to consider video.

Technical approach and its novelty: This competition encourages researchers to create innovative system-level solutions that can process images efficiently. The solutions have been published in conferences and journals.

Results: More than 300 solutions were submitted in the online tracks. These solutions outperformed the best public solutions. The onsite competition saw 24 times improvement in energy efficiency (calculated as the ratio of accuracy divided by the energy consumption). The accuracy is measured as the mean average precision. This competition has been sponsored by industry as well as multiple societies in IEEE.

Significance for the tinyML community: The winners improve the state-of-the-art solutions in efficient computer vision. These solutions may be deployed in embedded systems, systems using renewable energy, or any systems that must use energy efficiently for running vision solutions. This poster will present the competition and summary of the winners' solutions.