

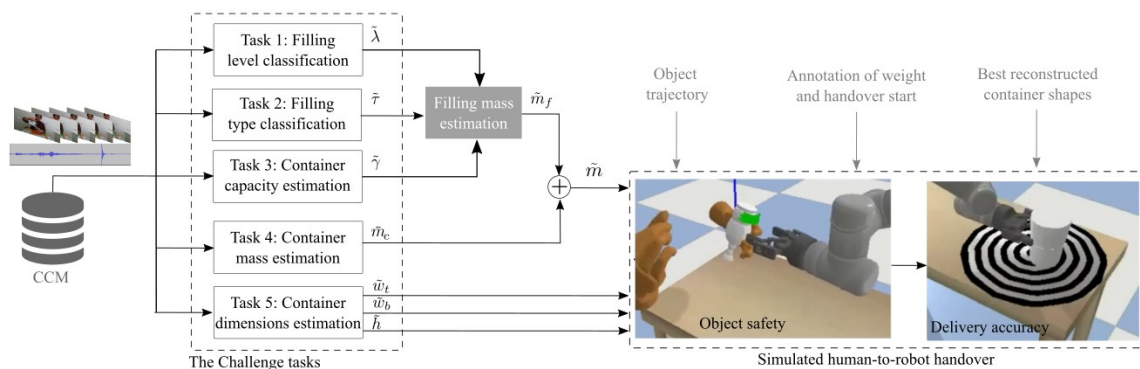
The CORSMAL challenge: Audio-visual object classification for human-robot collaboration

<http://cor-smal.eecs.qmul.ac.uk/challenge.html>



Call for participation

The challenge focuses on the design and evaluation of novel multi-modal perception solutions for the estimation of the filling amount (Task 1), type (Task 2), and the container capacity (Task 3), mass (Task 4), and dimensions (Task 5) using audio and visual data (either RGB, depth, or both modalities). The solutions will be designed and developed within a real-to-simulation framework that enables the visualisation and assessment of the accuracy and safeness for human-to-robot handovers. The challenge uses CORSMAL Containers Manipulation (CCM) as reference dataset. CCM consists of 1,140 visual-audio-inertial recordings of people interacting with different container types, filling types and levels of fullness, for example while pouring a filling into a glass or shaking a food box. The dataset is distributed in 3 splits: public training set, public test set, and private test set.



Topics

Contributions to the CORSMAL challenge, in conjunction with the 2022 IEEE International Conference on Acoustic, Speech and Signal Processing, are invited on the following topics:

- Machine learning for multi-modal fusion (audio and video data)
- Multi-modal signal analysis and processing
- Deep learning architectures for estimating the properties of objects
- Multi-modal algorithms for estimating the amount and type of content of a container
- Object, hand and body detection and tracking
- Multi-modal object detection
- Multi-modal and multi-view tracking
- Machine listening and machine vision for fullness estimation
- Robustness of multi-class classifiers with transparent objects
- Intention prediction

Submission

Participants must submit the results of the public test set as well as the source code and executable files that will be run by the organizers on the private test set of the provided dataset.

The ranking will be based on a score that aggregates the results of a set of well-defined tasks and the impact of these tasks on the performance of a real-to-simulation framework in terms of accuracy of delivery and safeness. The challenge will provide rankings for each individual task and groups of tasks, such as (i) filling type and level; (ii) container capacity and dimensions; and (iii) filling mass. Results will be presented for both private test set, public test set, and their combination.

The challenge will recognise the best solution from the leaderboards of the groups of tasks as well as those of filling level estimation, container capacity estimation, and container mass estimation. The challenge winners will be the team with the best-performing solution on the overall ranking on the combined test set (highest score, above 60); and the team with the most innovative solution (as judged by the organisers among the submission with score above 60).

Schedule

10 November 2021 [Public training set available for download](#)

15 January 2022 Release of the password for the public test data set

24 January 2022 Submission of (i) papers, (ii) estimations results on the public test data set, and (iii) source code

10 February 2022 Paper acceptance notification and release of the results on the leaderboards

17 February 2022 Camera-ready papers for ICASSP 2022 Proceedings due

For enquiries contact: cor-smal-challenge@qmul.ac.uk