

# The CORSMAL Challenge: Multi-modal Fusion and Learning for Robotics

## Call for participation

A major challenge for human-robot cooperation in household chores is enabling robots to predict the properties of containers with different fillings. Examples of containers are cups, glasses, mugs, bottles and food boxes, whose varying physical properties such as material, stiffness, texture, transparency, and shape must be inferred on-the-fly prior to a pick-up or a handover. The CORSMAL challenge focuses on the estimation of the pose, dimensions and mass of containers.

The CORSMAL Challenge distributes a multi-modal dataset with 1140 visual-audio-inertial recordings of people interacting with containers, for example while pouring a liquid in a glass or moving a food box. The dataset is recorded with four cameras (one on a robotic arm, one worn by the person and two third-person views) and a microphone array. Each camera provides RGB and depth, which are temporally synchronized and spatially aligned. The body-worn camera is equipped with an inertial measurement unit, from which we provide the data as well.

Contributions to the ICME 2020 CORSMAL Challenge are invited on the following topics:

- Machine learning for multi-modal fusion (inertial, 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
- Multi-view object classification
- Machine listening and machine vision for fullness estimation
- Robustness of multi-class classifiers with transparent objects
- Intention prediction

Participants should submit a paper describing the proposed method according to the ICME 2020 guidelines and the results on the testing dataset by email to the coordinators according to the schedule shown below.

## Schedule

Release of the training dataset: ~~30 November 2019~~ 5 December 2019

Release of the testing dataset: 30 January 2020

Results on the testing dataset due: 21 February 2020

Release of the evaluation results: 28 February 2020

Paper due: 13 March 2020

Final acceptance notification: 15 April 2020

Final manuscript due: 29 April 2020

## Challenge webpage

[http://corsmal.eecs.qmul.ac.uk/ICME2020\\_Challenge.html](http://corsmal.eecs.qmul.ac.uk/ICME2020_Challenge.html)