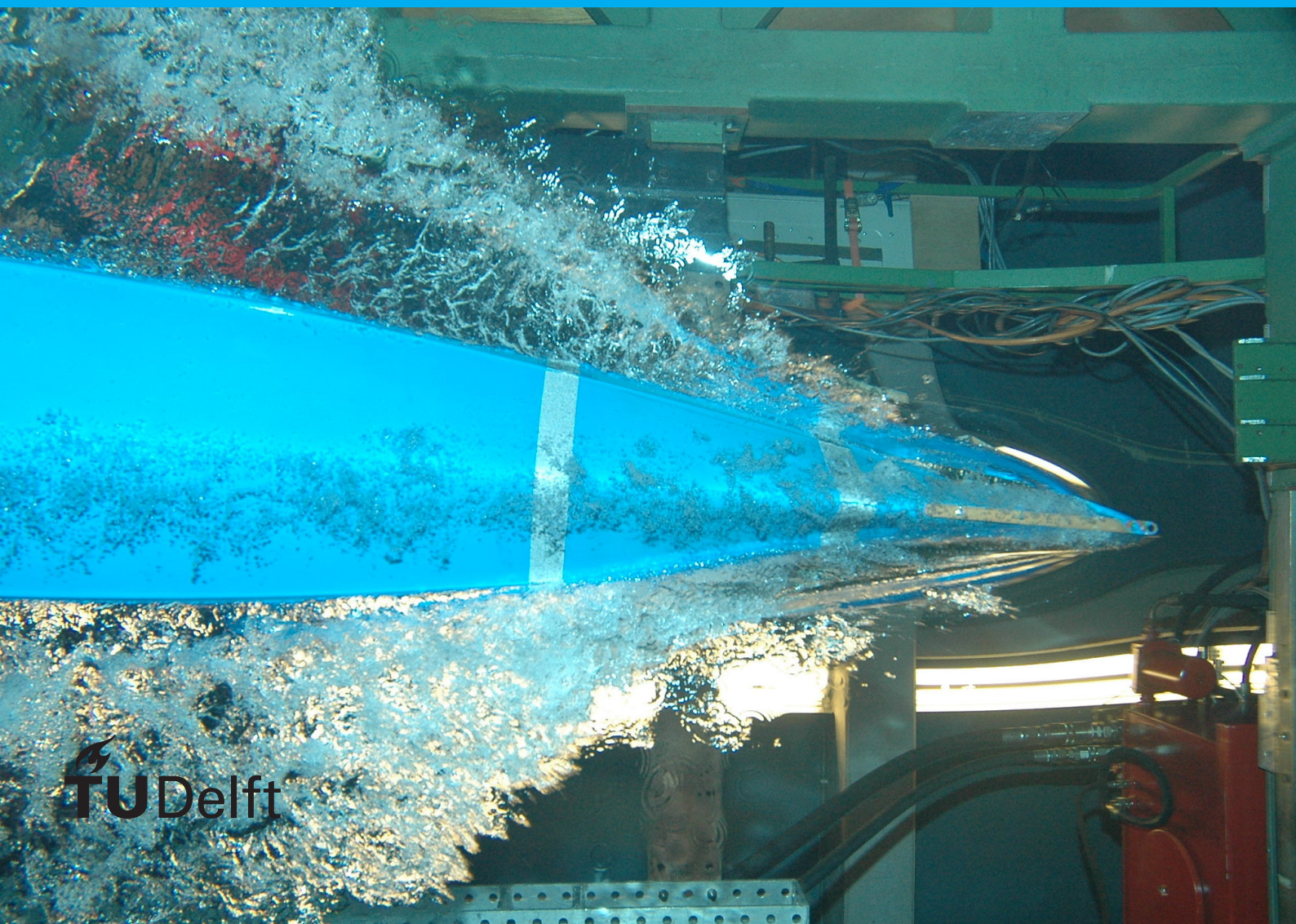
Learn representations in the presence of segmentation label noises

J. Ju



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by

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Preface

Segmentation datasets collected with the crowd-sourcing power are often available on a relatively large scale but contains label errors, e.g., mislabeled objects or unsegmented objects. In this thesis, we present a method to utilize these datasets to learn representations for convolutional neural networks. In particular, we propose to train convolutional neural networks with foreground and background segmentation instead of per class segmentation to get rid of the influence of mislabeled objects. We also propose a class-dependent sigmoid/softmax loss to compensate unsegmented objects. The proposed class-dependent loss was proved to achieve better classification performance than weighing the losses for different classes when training convolutional neural networks with only positive and unlabeled data.

Members of the thesis committee include Prof. dr. A.Hanjalic (Multimedia Computing Group, TU Delft) as the chair, dr. J.C. van Gemert (Vision Lab, TU Delft) who was the daily supervisor of the student, and Prof.dr. M. Loog (Pattern Recognition Laboratory, TU Delft) and dr. Z. Szlávik (CAS Benelux, IBM).

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