

Proceedings of the
1st International Workshop on
Quantification and Classification
under Dataset Shift
(QCDS 2026)

Mirko Bunse, Pablo González, Eyke Hüllermeier,
Alejandro Moreo, and Fabrizio Sebastiani (eds.)

Preface

The 1st International Workshop on Quantification and Classification under Dataset Shift (QCDS 2026 – <https://qcds-2026.github.io/>) has been held in Napoli, IT, on September 7, 2026, as a satellite workshop of the European Conference on Machine Learning and Principles and Practice of Knowledge Discovery in Databases (ECML/PKDD 2026).

Quantification and classification are two supervised learning tasks that, in real applications, are often hampered by changes in data distributions, i.e., by dataset shift. The two tasks differ in what trained models predict: while a classifier predicts the class label of each individual data point, a quantifier predicts the prevalence (i.e., relative frequency) of each class in a set of unlabelled data points. Both classifiers and quantifiers can suffer if dataset shift is at play, at least as long as they are not designed to handle the current type of shift robustly. Research has shown that a quantifier robust to dataset shift can facilitate robust classification, and a classifier robust to dataset shift can facilitate robust quantification.

QCDS 2026 aimed to engage the diverse expertise of the ECML/PKDD community; as dataset shift remains a fundamental challenge in real-world deployments, understanding the interplay between classification and quantification is more critical than ever. This workshop provided a collaborative forum for researchers and practitioners to bridge the gap between these two important fields, to share breakthroughs in machine learning methods robust to dataset shift, and to explore emerging applications.

QCDS 2026 was a follow-up of the Learning to Quantify (LQ) workshop series (see e.g., the 5th edition at <https://lq-2025.github.io/>), which concentrated exclusively on quantification. QCDS 2026 consisted of 8 oral presentations and 8 poster presentations, with each of these 16 submissions having gone through a rigorous peer-reviewing process by two or more reviewers each. The present volume contains the text of 15 of the presentations given at the workshop (for the other presentation the authors asked for their

paper not to be in the proceedings). We hope that the availability of the present volume will increase the interest in the subject of quantification and classification under dataset shift on the part of researchers and practitioners alike, and will contribute to making this topic better known to potential users of the corresponding technologies and to researchers interested in advancing the field.

Mirko Bunse
Pablo González
Eyke Hüllermeier
Alejandro Moreo
Fabrizio Sebastiani

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- Fabrizio Sebastiani, Consiglio Nazionale delle Ricerche, IT

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