

# Machine learning and data-driven approaches for optimization and uncertainty quantification

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## ABSTRACT

Uncertainty quantification (UQ) and optimization under uncertainties have become a topic of great interest over the last years. Since the numerical solvers or computer models are nowadays more and more complex and computationally expensive, it is not feasible to apply popular techniques as Monte Carlo simulation to predict for instance the uncertainty given a randomness in the input parameters of a given model. Recent papers in the literature have reviewed several techniques to bypass this issue, i.e. with the application of surrogate models for optimization under uncertainties [1-4]. Machine learning techniques commonly used in the area of artificial intelligence and data mining can represent a valuable support to reduce the computational cost required for optimization and UQ.

This minisymposium aims at collecting and disseminating new ideas in application of machine learning and data-driven approaches for optimization and uncertainty quantification focusing on real world problems in aeronautics.

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