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Highlights for the paper “Dual oxygen and temperature luminescence learning sensor with parallel inference” submitted to Sensors and Actuators Reports.

* We propose an entirely new approach to luminescence sensing, which is based on multi-task learning neural networks and allows the parallel inference of multiple quantities using one single indicator and one single measuring channel.
* We describe and characterize a complete physical sensor that can extract two quantities (oxygen concentration and temperature) at the same time from a single optical measurement and using a single luminophore.
* We describe a new experimental procedure to gather automatically enough data to train a neural network.
* We introduce a new metric, which measures the maximal error in the predictions of a sensor based on artificial neural network, and thus define its accuracy.

Sincerely,

Prof. Dr. Francesca Venturini

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