

## Multivariate Output-Associative RVM for Multi-Dimensional Affect Predictions

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**Abstract :** The current trends in affect recognition research are to consider continuous observations from spontaneous natural interactions in people using multiple feature modalities, and to represent affect in terms of continuous dimensions, incorporate spatio-temporal correlation among affect dimensions, and provide fast affect predictions. These research efforts have been propelled by a growing effort to develop affect recognition system that can be implemented to enable seamless real-time human-computer interaction in a wide variety of applications. Motivated by these desired attributes of an affect recognition system, in this work a multi-dimensional affect prediction approach is proposed by integrating multivariate Relevance Vector Machine (MVRVM) with a recently developed Output-associative Relevance Vector Machine (OARVM) approach. The resulting approach can provide fast continuous affect predictions by jointly modeling the multiple affect dimensions and their correlations. Experiments on the RECOLA database show that the proposed approach performs competitively with the OARVM while providing faster predictions during testing.

**Keywords :** dimensional affect prediction, output-associative RVM, multivariate regression, fast testing

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