



Complex Support Vector Machines for Regression and Quaternary Classification

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(Submitted on 9 Mar 2013)

We present a support vector machines (SVM) rationale suitable for regression and quaternary classification problems that use complex data, exploiting the notions of widely linear estimation and pure complex kernels. The recently developed Wirtinger's calculus on complex RKHS is employed in order to compute the Lagrangian and derive the dual optimization problem. We prove that this approach is equivalent with solving two real SVM tasks exploiting a specific real kernel, which it is induced by the chosen complex kernel.

Comments: Manuscript submitted to the Journal of Machine Learning Research

Subjects: **Learning (cs.LG)**; Machine Learning (stat.ML)

Cite as: [arXiv:1303.2184 \[cs.LG\]](#)
(or [arXiv:1303.2184v1 \[cs.LG\]](#) for this version)

Submission history

From: Pantelis Bouboulis [[view email](#)]

[v1] Sat, 9 Mar 2013 09:09:54 GMT (988kb)

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