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Alexandra V Pasi* (avp0826@westminstercollege.edu) and **Richard Wellman**. *Differential Equations for the Construction of Novel Kernels in Machine Learning*.

Significant research in Machine Learning has been directed at the application and implementation of kernel-based learning methods. However, few studies have focused on the problem of kernel construction. This paper introduces a novel method for generating new kernels by solving differential equations for kernel functions. We examine specific kernels generated using this method. These kernels are applied to various data sets and compared against state-of-the-art kernels. (Received September 25, 2012)