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**Coherence Encoders with Kernel Tricks**

My research goal is to make some modifications to the well-known deep learning technique – Autoencoders. Autoencoders transfer high-dimensional data to low-dimensional mid-layer by some non-linear calculations in hidden layers, then transfer it back to the original dimension with minimal information lost. My target is to apply similar method to two identical but somehow related high-dimensional datasets, transferring them to each other by some coherence tricks. Kernel methods allow me to apply linear calculations in the Reproducing Kernel Hilbert Space. The Kernel-based encoders, by deep-learning approach, help me find out the optimal kernel function and its parameters.