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Abstract

This report documents my work at Kyushu University from April to September 2013. Kyushu University is a public university in Fukuoka, on the island of Kyushu in western Japan. Part of the faculty of design, the Sakamoto laboratory where I worked as a research student specializes in computer vision, virtual reality and machine learning. I researched under the supervision of teacher Hiroyasu Sakamoto, and in collaboration with graduate student Yuki Nakagawa.

The subject of my research was animation character identification from color images. It is a classification problem whose goal is to automatically assign a name to a color image depicting an animation character, using data gathered from a training phase. The objective was to design an algorithm improving on the state of the art on this problem. For this purpose, methods borrowing from recent research in spectral graph theory, kernel methods and their applications to image processing and machine learning were studied and implemented. This document presents each technique considered, its theoretical foundations and an analysis of its results.

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