

Mathematical Models for Image Classification

Tong Zhang, Ph.D.

Professor, Department of Statistics

Rutgers University

Abstract

I will describe a framework for image classification, where each image is represented as a distribution over local descriptors.

The talk discusses two essential components that involve novel mathematical models:

1. nonlinear function approximation using geometric structures of local descriptors
2. functional learning on probability distributions motivated by Bhattacharyya kernel

The resulting system achieves state of the art image classification performance.

This work has been done jointly with Kai Yu@NEC

Biography

Tong Zhang received a B.A. in mathematics and computer science from Cornell University in 1994 and a Ph.D. in Computer Science from Stanford University in 1998. After graduation, he worked at IBM T.J. Watson Research Center in Yorktown Heights, New York, and Yahoo Research in New York City. He is currently a professor of statistics at Rutgers University. His research interests include machine learning, algorithms for statistical computation, their mathematical analysis and applications.