University of Notre Dame
Department of Computer Science & Engineering
Presents

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Sparse Representations, Dictionaries and Domain Adaptation Methods for Image and Video-based Recognition

Abstract

Feature extraction or representation of patterns and adaptation of classifiers designed using training data to be effective on testing data are two fundamental problems in image and video-based recognition. In this talk, I will discuss new solutions to these problems based on theories of sparse representations, dictionary learning and domain adaptation with applications in image and video-based recognition. Specifically, I will discuss methods for representing images and videos using linear and non-linear dictionaries. I will then discuss methods for adapting the dictionaries for addressing shifts in data distributions due to changes in pose, illuminations, spatio-temporal sampling and blur with applications to recognition of faces, iris, expressions, objects and actions.

Bio

Prof. Rama Chellappa received the B.E. (Hons.) degree in Electronics and Communication Engineering from the University of Madras, India and the M.E. (with Distinction) degree from the Indian Institute of Science, Bangalore, India. He received the M.S.E.E. and Ph.D. Degrees in Electrical Engineering from Purdue University, West Lafayette, IN. During 1981-1991, he was a faculty member in the department of EE-Systems at University of Southern California (USC). Since 1991, he has been a Professor of Electrical and Computer Engineering (ECE) and an affiliate Professor of Computer Science at University of Maryland (UMD), College Park. He is also affiliated with the Center for Automation Research, the Institute for Advanced Computer Studies (Permanent Member) and is serving as the Chair of the ECE department. In 2005, he was named a Minta Martin Professor of Engineering. His current research interests span many areas in image processing, computer vision and pattern recognition. Prof. Chellappa has received several awards including an NSF Presidential Young Investigator Award, four IBM Faculty Development Awards, two paper awards and the K.S. Fu Prize from the International Association of Pattern Recognition. He is a recipient of several teaching, research, service, innovation and mentoring awards from USC, UMD, the IEEE Signal Processing Society and the IEEE Computer Society. In 2010, he was recognized as an Outstanding ECE by Purdue University. Prof. Chellappa has served as the Editor-in-Chief of IEEE Transactions on Pattern Analysis and Machine Intelligence and as General and Technical Program Chair/Co-Chair for several IEEE international and national conferences and workshops. He is a Golden Core Member of the IEEE Computer Society, served as a Distinguished Lecturer of the IEEE Signal Processing Society and as the President of IEEE Biometrics Council. He is a Fellow of IEEE, IAPR, OSA and AAAS and holds three patents.

Thursday, April 4, 2013
3:30 p.m.
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