

学术报告会

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Neutralizing facial expressions in 3D to improve face recognition in 2D

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Abstract:

Expression and pose variations are major challenges for reliable face recognition (FR) in 2D. In this talk, we aim to endow state of the art face recognition SDKs with robustness to simultaneous facial expression variations and pose changes by using an extended 3D Morphable Model (3DMM) which isolates identity variations from those due to facial expressions. Specifically, given a probe with expression, a novel view of the face is generated where the pose is rectified and the expression neutralized. We present two methods of expression neutralization. The first one uses prior knowledge to infer the neutral expression image from an input image. The second method, specifically designed for verification, is based on the transfer of the gallery face expression to the probe. Experiments using rectified and neutralized view with a standard commercial FR SDK on two 2D face databases, namely Multi-PIE and AR, show significant performance improvement of the commercial SDK to deal with expression and pose variations and demonstrates the effectiveness of the proposed approach. Then, we aim to endow the state of the art FR SDKs with the capabilities to recognize faces in videos. Finally, we present different methods for improving biometric performances for specific cases.

Biography:

陈立明教授于1984年在法国南特大学 获得数学和计算机双学士学位。 1986年和1989年在巴黎6大分别获得计算机硕士和博士学位。随后，他在贡比涅科学技术大学担任副教授，再于1998年加入中央理工大学担任教授一职，带领一批高精尖人才专业从事于多媒体分析和模式识别的研发工作。 从2001年至2003年期间，担任法国AVIVIAS公司首席科学顾问，从事海量多媒体数据管理系统的开发。2005年，他有担任法国电信驻中国研发中心的科学顾问。从2007起，担任中央理工学院数学计算机系系主任一职。陈立明教授拥有3项发明专利，发表了150多篇专业论文，从1995年 至今担任众多顶尖专业会议和杂志的会议主席以及评审，也是一系列高端欧洲研发项目，法国自然科学基金项目以及罗纳尔多地区项目的主要负责人。亲自督导培养了25位博士生。目前他主要从事于2D/3D人脸分析和识别，图像和视频的分析和归类，以及图片，音频和视频的情感分析和研究。