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Biography:

Speech Title:
Learning Mathematics while Seeing it: Ellipse Fitting

Abstract:
Optimal estimation of parameters from image and sensor data plays a fundamental role in today's intelligent applications such as computer vision and robotics. For this, we model sensor noise as random variables and apply statistical optimization principles. However, this involves highly abstract mathematical techniques, which are very difficult to learn for students and researchers who are mainly interested in practical applications. In my talk, I show that "ellipse fitting" to image data provides a very good means to learn such principles, because we can "see" ellipses depicted on displays. Also, ellipse fitting contains all necessary ingredients of statistical optimization techniques that apply to many different problems in computer vision and robotics.