应用数学讲座

Научный Семинар по Прикладной Математике

Research Seminar on Applied Mathematics

应用数学报告（62）

报告人 / Докладчик / Speaker: 罗守生 副教授（河南大学）

题 目 / Название / Title: Computable Characterization Methods for Objects with Convexity prior and Applications in Image Segmentation and Convex Hull Computation

时间 / Время / Time：**24 Jul. 2022,** 14:30-15:00

地点 / Место / Venue: 图书馆1楼报告厅

摘要 / Аннотация / Abstract:

In real images, objects are destroyed by occlusion, illumination bias and noise. Shape priors attract an increasing attention in real applications. Therefore, computable characterization method for convex objects is vital. We proposed two computable characterization methods (level set method and binary method) for convex shapes. Both of them utilize the fact that the convexity of any object is equivalent to the curvature nonnegativity of its boundary, which allows one to design efficient algorithms for involved applications. These two methods were generalized to handle multiple convex objects, convex ring and 3D convex objects (level set method). The characterization methods are applied to image segmentation and convex hull computation. ADMM algorithm and proximal ADMM algorithm were adopted to optimize the models using the two characterization methods, respectively.