以色列理工学院 Gill Barequet 教授讲座

报告题目：Surface interpolation between parallel slices & Polyiamond growth constant improvement
报告时间：2016 年 10 月 11 日（星期二），下午 14:00
报告地点：北京航空航天大学新主楼 B506
报告人：Gill Barequet, Ph. D., Professor, Israel Inst. of Technology

About the speaker（报告人简介）
Gill Barequet has been a professor of computer Science at the Technion, Israel Inst. of Technology, since 1998. He currently serves as vice dean and head of the curriculum committee of the faculty of computer science. He received his B.Sc. in Mathematics and Computer Science, and M.Sc. and Ph.D. in Computer Science from Tel Aviv University in 1985, 1987, and 1994, respectively. His research interests include discrete and computational geometry, geometric optimization, interpolation and reconstruction algorithms, and enumerative combinatorics. He holds five US and two Israeli patents.

Abstract（报告摘要）：

(1) Skeleton-based piecewise-linear interpolation between parallel slices

We present an efficient method for interpolating a piecewise-linear surface between two parallel slices, each consisting of an arbitrary number of (possibly nested) polygons that define "material" and "nonmaterial" regions.

This problem has applications to medical imaging, geographic information systems, etc. Our method is fully automatic and is guaranteed to produce non-self-intersecting surfaces in all cases regardless of the number of contours in each slice, their complexity and geometry, and the depth of their hierarchy of nesting.
The method is based on computing cells in the overlay of the slices, that form the symmetric difference between them. Then, the straight skeletons of the selected cells guide the triangulation of these cells. Finally, the resulting triangles are lifted up in space to form an interpolating surface.
We provide some experimental results on various complex examples to show the good and robust performance of our algorithm.
Joint work with Michael T. Goodrich, Aya Levi-Steiner, and Dvir Steiner.

(2) Improved Bounds on the Growth Constant of Polyiamonds

A polyiamond is an edge-connected set of cells on the triangular lattice. The size of a polyiamond is simply the number of cells it contains. The growth constant of polyiamonds, λ, is the limit of the ratio between the number of polyiamonds of size n+1 and the number of polyiamonds of size n, as n tends to infinity. In this talk I will show improved lower and upper bounds on λ, proving that it is between 2.8424 and 3.6050.
Joint work with my Ph.D. student Mira Shalah.

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