Discrete Geodesic and Its Applications in Digital Geometry Processing

Professor He Ying Nanyang Technological University, Singapore <u>http://www.ntu.edu.sg/home/yhe</u>

Geodesic is a generalization of straight line to curved space. As a fundamental concept, geodesic plays an important role in many graphics applications, such as surface parameterization, symmetry detection, shape analysis and retrieval, texture mapping, sampling, etc. In this talk, I will introduce some recent progress of the discrete geodesic problem, including defect-tolerant geodesics, geodesic offsets, all-pairs geodesic distance query, and parallel computing. Then I will demonstrate several interesting applications in digital geometry processing, such as geodesic Voronoi diagram, extended exponential map, texture brush and Poisson disk sampling.

