

NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Special Lecture Series - ACM Summer School on Geometric Algorithms and their Application

Subject Co-ordinator - Prof. Arijit Bishnu

Co-ordinating Institute - IIT - Madras

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Introduction to Computational Geometry
Lecture 2 - Convex hull
Lecture 3 - Quick hull
Lecture 4 - Plane sweep algorithm
Lecture 5 - Voronoi Diagram - I
Lecture 6 - Convex Geometry - I
Lecture 7 - Convex Geometry - II
Lecture 8 - Incidence Geometry - I
Lecture 9 - Incidence Geometry - II
Lecture 10 - Plane sweep algorithm
Lecture 11 - Polygon Triangulation
Lecture 12 - Geometric and Abstract Simplicial Complexes
Lecture 13 - Convex Polytopes and Polyhedra
Lecture 14 - Art Gallery Theorem
Lecture 15 - Smallest Enclosing Disc
Lecture 16 - Point Hyperplane Duality
Lecture 17 - Voronoi Diagrams and Delaunay triangulations - I
Lecture 18 - Voronoi Diagrams and Delaunay triangulations - II
Lecture 19 - Point Location
Lecture 20 - Range Searching (KD Tree)
Lecture 21 - Range Searching (Range Tree)
Lecture 22 - Visibility Graph and motion planning
Lecture 23 - Geometric Approximation
Lecture 24 - Application of incidence geometry in combinatorics
Lecture 25 - Robot motion planning and visibility
Lecture 26 - Reeb Graph Introduction and Morse Theory basics
Lecture 27 - Reeb Graph Properties
Lecture 28 - Reeb Graph Algorithms, Applications
Lecture 29 - Arrangements - I

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- Lecture 30 - Linear Programming
- Lecture 31 - Arrangements - II
- Lecture 32 - Zone Theorem and Application
- Lecture 33 - Randomized Incremental Construction - I
- Lecture 34 - Randomized Incremental Construction - II
- Lecture 35 - VC-dimension, Epsilon-nets, LP-based approximation for Geometric Covering
- Lecture 36 - Quasi-uniform Sampling for Weighted Covering Problems.
- Lecture 37 - Local Search for Packing and Covering
- Lecture 38 - PTAS via Local Search - I