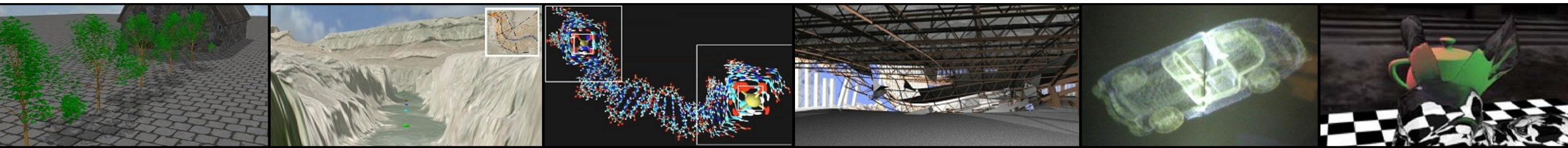


COT 4521: INTRODUCTION TO COMPUTATIONAL GEOMETRY



Midterm Review Topics

Paul Rosen
Assistant Professor
University of South Florida



REVIEW TOPICS

- BASIC GEOMETRY & TRIGONOMETRY
 - points, vectors, angles, cross products, etc.
- SEGMENT/SEGMENT INTERSECTION
 - pairwise, AABB method, sweep method
- POLYGONS
 - Simple/non-simple, orientation, internal/external angles, diagonal definition, point inside polygon, number of triangulations, area, intersection by walking chains



REVIEW TOPICS

- ART GALLERY PROBLEM
 - Max of mins definition, triangulation, dual of a triangulation, coloring of vertices
- TRIANGULATION
 - Diagonal-based approach, ear-based approach, monotone partitioning, monotone triangulation
- CONVEX HULLS
 - Naïve algorithms, QuickHull, Gift wrapping, Graham scan, incremental, divide-and-conquer



REVIEW TOPICS

- FOR ALL ALGORITHMS, STUDY THE ALGORITHM THEMSELVES, TIME COMPLEXITY (WORST/BEST/AVERAGE CASE), AND WORST/BEST CASE CONFIGURATIONS

