Motivation

• When we take a picture from satellite:
  – Roof Picture

What is GeoSim?

• GeoSIM: Creating the environment texture through social participation of users equipped with camera phone

• Direct Users with GPS info
• Evaluate the pictures from Users
• Attach textures to the building geometry

What do we have?

• G1 Client:
  – 1) View point selection
  – 2) User Management System
  – 3) Image taking guided by simulated images

• 3D Model Server:
  – 1) Simulating Images for users
  – 2) Pictures Evaluation pipelines
  – 3) Building Texturing on offline models
Two levels of processing: online and offline

Is there missing something?

• User cannot browse the pictures
• User cannot query the pictures
• Current server model is developed under C#
• Need more online-ish model environment

• Solution:
  – Google Map API?

What is ArcGIS?

• ArcGIS is a suite consisting of a group of geographic information system (GIS) software products produced by ESRI.
  – ArcCatalog - Data
  – ArcToolbox - Analysis
  – ArcMap - Visualization
  – ArcServer
  – ArcScene
Supported Function (I)

- Online Visualization (2D)
  - User Moving Trajectory
  - Picture Browsing
- User-wised Query
  - Temporal Query
  - Spatial Query (NN query) [Paper A1]
  - Text Query (*)
- Geometry-wised Query
  - Range Query
  - User Trajectory Query
  - CkNN User Query [Paper B1 & B2]

Supported Function (II)

- 3D visualization
  - Using 3D terrain data and ArcScene
  - e.g. buildings to be taken by the specific user
- Mobile Based Function (*)
  - ArcMobile
  - Do spatial query on the cell phone

Supported Function (III*)

- Texture Mapping
  - Image Processing
  - Computer Graphics

Implementation

- Data Availability:
  - USC DEM Data (Digital Elevation Model)
  - Geo Database support (geodb)
  - Image Database
- Software Availability
  - ArcGIS 9.0x (free license for course usage)
  - Visual Basic Application
- Human Source Availability
  - CSCI 599

Task & Timeline (2~3 person)

- Sep:
  - Adjust the GeoSIM model into ArcGIS format
  - Setup the ArcServer and brief query interface
- Oct:
  - Finish the spatial query functions
  - Milestone Test: all the queries and 2D visualization
- Nov:
  - 3D model construction & Texturing
- Dec:
  - Final Report

Reference

- GeoSIM
  - http://infolab.usc.edu/projects/GeoSIM/
- ArcGIS
  - Discription
    - http://www.esri.com/software/arcgis/
  - Sample
    - http://sanbernardino.ca.crimeviewcommunity.com/