Spatial Data Analysis
Software Tools
Goals and Organization

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CSISS Spatial Data Analysis Software Tools
Goals

1. Demonstrate and showcase state-of-the art tools

2. Interact with other specialized developers

3. Dialogue
   - Priorities for software design
   - Data standards
   - Model standards
   - Inter-operability
   - Open environments

4. Introduce CSISSL open source software initiative
Organization

• Four main themes
  – Geovisualization and Exploratory SDA
  – Spatial Models and Spatial Modeling
  – Software Architectures for SDA
  – User Perspectives

• Structure
  – Plenary Speaker
  – General Discussion
  – Break-out Session
  – Summary Session
    * Consensus
    * Agenda for Future Research
Demonstration Session

- Friday afternoon: 4:30-6:30
- 3-30 minute sessions
  - Each with 5 simultaneous demos
  - Poster session format
- Reception
  hosted by TerraSeer Inc. and BioMedware Inc.
Outcomes

- Wrap-up
  - Future Directions
  - Action Items

- Publications
  - Proceedings CD ROM
  - Future edited volume

- Collaborative Projects
  - New efforts
  - Synergistic efforts
  - CSTAN
∗ Comprehensive Spatial Tools Archive Network
∗ CPAN, CRAN
∗ CSISS Clearinghouse
∗ Focus on methods/tools
Overall Discussion Points

- Architectural
- Analytical
- User Space vs. Developer Space
- Development Models
Architectural

• Division of labor
  – GIS vs. No GIS
  – Kernel + modules
  – Client/server

• EDA vs. ESDA
  – a-spatial data structures
  – spatial data structures

• Visualization and Computational Layers

• Roles of scripting and compiled languages
• Portability
Analytical

- Spatial Modeling vs. ESDA
  - Confirmatory
  - Exploratory

- Is there a core set of methods?

- Point vs. area (lattice) vs. network data

- Temporal Dimensions
  - Dynamics of spatial clustering
  - Clustering of temporal co-movements
User Space vs. Developer Space

• Training requirements
  – User friendly (a la ESRI)
  – Technique friendly (a la R)

• Users as collaborators
  – Students == future developers
  – Specialists as contributors

• Code is not enough
  – Documentation
  – Examples - Best Practices
  – Evangelists
Development Models

- Open Source or Closed Source
  - Open Source
    * GPL
    * LGPL
    * BSD
  - Closed Source
    * Proprietary
    * Shared source

- Open Source and Closed Source
  - Consortium
  - Clearing house
– Portal on Tools
– Open Source and Closed Source welcomed
"I see this as the essence of open source projects: The energy and creativity of many people with diverse goals together can work miracles!"

- Guido van Rossum