Spatial Data Analysis Software Tools

Goals and Organization

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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 CSISS 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