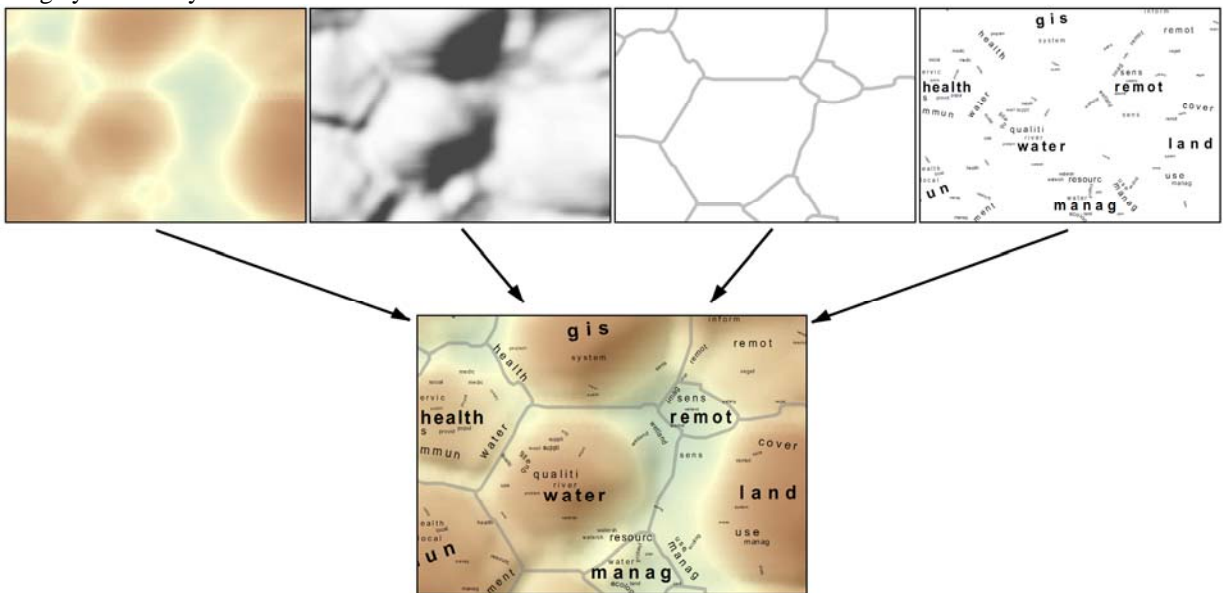


## Brief Bio and (PR)<sup>2</sup>: Problems & Pitches – Rants & Raves by *André Skupin*



- image you identify with



- brief biography  
André Skupin is an associate professor of Geography at San Diego State University. He received a Dipl.-Ing. degree in Cartography at the Technical University Dresden, Germany, and a Ph.D. in Geography at the State University of New York at Buffalo. Areas of interest and expertise include text document visualization, geographic visualization, cartographic generalization, and visual data mining. Much of his research revolves around new perspectives on geographic metaphors, methods, and principles, outside of traditional geographic domains.
- five major publications
  - Skupin, A. (2009) Discrete and Continuous Conceptualizations of Science: Implications for Knowledge Domain Visualization. *Journal of Informetrics*. 3(3)
  - Skupin, A. and Skupin, M. (2009) On Written Language in Works of Art and Cartography. In: Cartwright, W., Gartner, G., and Lehn, A. (Eds.) *Cartography and Art*. Berlin: Springer. 207-222.
  - Agarwal, P., and Skupin, A. (Eds.) (2008) *Self-Organising Maps: Applications in Geographic Information Science*, Chichester, England: John Wiley & Sons, Ltd.
  - Skupin, A. (2007) Where do you want to go today [in attribute space]? in: Miller, H. (Ed.) *Societies and Cities in the Age of Instant Access*. Springer. 133-149.

- Skupin, A. (2004) The World of Geography: Visualizing a Knowledge Domain with Cartographic Means. *Proceedings of the National Academy of Sciences*. 101 (Suppl. 1): 5274-5278
- list of relevant projects you are working on
  - Software projects being developed within students' Master's theses:
    - *SOM Analyst*: a Python-based toolbox to support self-organizing maps (SOM) within off-the-shelf geographic information system (GIS) software (ArcGIS) (<http://code.google.com/p/somanalyst/>)
    - *PySOM*: experimental software to allow training of SOM with neurons arranged on a sphere; mainly used to investigate distortion patterns occurring during projection from high-dimensional to low-dimensional space (<http://code.google.com/p/pysom-thesis/>)
  - tri-space analysis: extension of SOM Analyst to allow analysis of patterns in the tri-space of objects, attributes, and time.
  - *AbstractMap*: database and software system to allow visualization of text documents by linking text indexing with GIS software components
- links to data or software you serve (if applicable)
  - <http://code.google.com/p/somanalyst/>
  - <http://code.google.com/p/pysom-thesis/>
- link to your home page  
<http://geography.sdsu.edu/People/Pages/skupin/index.htm>

## General Questions

### 1) What is (are) your main interest(s) in attending the workshop?

I would like to learn more about how science philosophers and historians approach conceptualizations of science and the scientific process. Specifically, I would like to receive some feedback on my recent attempt to apply the object/field duality – which has been very useful in geographic information science – in the conceptualization of the building blocks of science. For example, how are such notions as “growth of science” or “knowledge diffusion” conceptualized?

I am also very eager to hear a bit about how the notion of conceptual spaces (a la Gärdenfors) is viewed by philosophers of science. Connected to this are concerns about metaphors, such as geographic metaphors applied to non-geographic spaces, and the cognitive plausibility of different types of visualization. Cognitive scientists will likely have some opinions on these issues too.

In addition, the set of participants seem uniquely suited to help me better to understand commonalities/differences in the *ontology of science* employed by philosophers versus computer scientists. One practical implication of this is how to avoid reverse ontology, where the data that happen to be available drive the conceptualization of science, as opposed to the other way around.

### 2) What would you like to learn / achieve at the workshop?

See above.

**3) If you are a philosopher or historian of science:** In what ways might people that study and map science benefit from your work?

**If you are a scientometrician/science map maker:** In what ways might philosophers or historians of science benefit from your work?

It seems to me that there is still a bit of disconnect between those developing algorithms/tools/interfaces for analysis/visualization of science on one side and philosophers and historians of science on the other. It reminds me of the traditional dichotomy between quantitative and qualitative approaches in geography. I strongly believe that visualization has the potential to bridge those two sides, and is beginning to do so.

As a “classically trained cartographer” that is now also making maps of non-geographic spaces, I have been forced to engage existing methods of information visualization, including visualizations of science. One critical aspect of my efforts has been to question the superficial declaration of certain *metaphors*, like “map” or “landscape,” and to remind those invoking them that they require careful consideration of the source domain. This ultimately extends to the *methods* used in the modeling of science. For example, such methods as overlay and buffering may as well be applicable to high-dimensional, abstract spaces. I admit though to being a skeptic with respect to most 3D visualizations and to being in favor of carefully designed, complex static displays instead of necessarily employing interactivity in all circumstances. I would be happy to spread these heresies among workshop participants. ☺