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Capstone Project Proposal

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Since beginning the MGIS program years ago, I have become increasingly aware of how geographic information technologies, including desktop GIS and web-based mapping, are creating unprecedented public awareness of maps, spatial phenomena, and 'personal geography'. Lower costs are accelerating the rate at which our society is generating spatial data. And small, powerful devices (computers, phones, etc) with constant internet access are connecting people to information in a way once dreamed of in science fiction.

What concerns me, and what I'd like to address in my capstone project, is how do we assess the quality of this information. I often see spatial information presented without any measure of accuracy or significance. Even in scientific literature, I do not feel that data on a map gets the same scrutiny as data in a chart or table. Standard statistical techniques do not work well with spatial data, and statistics that I do see often ignore that key component of spatial data - location.

I would like to build upon ideas introduced in GEOG 586 - Geographic Information Analysis. I do not have a specific capstone project in mind, but rather a desire to explore topics such as:

- Advanced spatial analysis techniques - How can fine-scale trends be extracted from large, detailed datasets? How can we determine if local spatial patterns are changing over a larger region?
- Analysis techniques for data that changes through time and space.
- What spatial statistical techniques are available to determine if perceived spatial patterns are more than the visualization of random events?
- What techniques can be used to link spatial patterns to other causal or correlated variables?

Besides GEOG 586, I also have statistics experience from a very challenging undergraduate biostatistics course where we use SAS to perform multivariate ANOVA's, non-parametric statistics, and other advanced techniques. For my GEOG 586 final project, I used JMP to perform Analysis of Covariance on spatial datasets covering the contiguous US.

Since I do not have a specific project in mind, I am hoping to find an advisor with a research question to provide my project's subject matter. The specific subject does not matter as much as the skills I would learn and apply. If I had a choice, however, I would prefer a natural resources topic (I have education and career experience here) or a topic of social / humanitarian importance. I remain open-minded about this though. I also might be interested in a project that is more academic than other capstone projects that I've seen, such as a comparison of different-related techniques.

One last item - if my first love is spatial analysis, then my mistress is web-based mapping and I am interested in incorporating this into my project, possibly as a way to present results.