

ISTeC (Information Science and Technology Center) Research Advisory Committee  
 Retreat on the Scientific and Engineering Foundations of Information Science and  
 Technology  
 Saturday, May 8, 8:15am to 3:00pm, Lory Student Center

**DOSSIER**

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<p>Research Interests (one paragraph): Geometric, topological, algebraic approaches for mathematical modeling. Of particular interest is the problem of dimensionality reduction of large data sets. Construction of empirical mappings, function approximation on scattered data including radial basis functions.</p> <p>Applications to brain computer interface, biometrics and face recognition, hurricanes, signal and image processing, reduction of dynamical systems.</p>	
<p>Titles of current research projects (funded or not):</p> <p><a href="#">Geometric, Algebraic &amp; Topological Invariants for Signal &amp; Image Processing(5-32393)</a></p> <p><a href="#">Face Manifolds for Recognition(5-32471)</a></p> <p><a href="#">The Whitney Reduction Network: Theory, Algorithms &amp; Applications(5-33106)</a></p> <p><a href="#">Geometric Pattern Analysis &amp; Mental Task Design for a Brain-Computer Interface(5-33324)</a></p> <p><a href="#">A Mathematical Modeling Program for Undergraduates in Science, Mathematics, Engineering &amp; Technology(5-33507)</a></p>	
<p>Current collaborations inside and outside your department:</p> <p>Computer Science: Chuck Anderson, Ross Beveridge, Bruce Draper</p> <p>Mathematics: Holger Kley, Chris Peterson, Gerhard Dangelmayr, David Dreisigmeyer</p> <p>Atmospheric Sciences: Michael Montgomery and John Persing.</p> <p>Academia Outside CSU: Dave Broomhead, Jerry Huke, University of Manchester, U.K., Hamid Krim, North Carolina State Univ,</p> <p>Government: National Security Agency, Industry: IBM, SIEMENS</p>	
<p>Breakout sessions you would like to attend at the retreat (please rank order from 1 to 3):</p>	
	Alternative models of computing
3	Computing and information processing in support of basic science and engineering
	Dense sensor networks
1	Imaging and tracking
2	Automatic image, text, and speech recognition for multimodal interfaces and search engines
	Other (Please suggest a title.)

Faculty at CSU whom you would like to see included into your preferred breakout group:

Ross Beveridge, Chris Peterson, Holger Kley, Chuck Anderson, Louis Scharf, Edwin Chong, Simon Tavener, Gerhard Dangelmayr.

One optional paragraph you would like other participants to read before the retreat: We have been developing new collaborations between mathematics and computer science and are actively seeking external support for these efforts (of course any opportunities for internal support would be nice ;-). We are open to additional collaborations and are actively pursuing these (in particular, with atmospheric sciences). Would like to advocate for the creation of a graduate research fellowship program across the university.