Clustering, MEMS, Bioinformatics, Financial Engineering, and other research projects

Investigators:
Donald Wunsch, Rui Xu, other collaborators

Funding Source:
Various, plus Mary K. Finley Missouri Endowment

Project Description:
Clustering R&D has been attracting increasing attention, because society produces data faster than it can be analyzed. Even many automated methods require significant investments of human expertise, algorithm development, and computational resources. Applications such as physical and computer security, bioinformatics, image analysis, sensor fusion, data mining, financial engineering, smart sensor networks, logistics and many others generate massive datasets that defy analysis. Clustering is the first line of defense against this data onslaught.

Micro-Electrical Mechanical Systems (MEMS) are important in safety and security applications. Our research in this area deals with neurocontrol of MEMS, particularly in a microfabrication context.

Computational Intelligence tools are becoming increasingly important in financial engineering application such as risk management and financial forecasting.

The Applied Computational Intelligence Lab engages in various other research problems pertaining to neural networks and related computational intelligence technologies.

Publications:
Books

2. Neural Networks in Micromechanics, Ernst Kussul, Tatiana Baidyk, and Donald C. Wunsch II, Springer-Verlag, 2010.


Book Chapters


Archival Journal Papers


11. “Decentralized Neural Network-based Excitation Control of Large-scale Power Systems”, Wenxin Liu, Jagannathan Sarangapani, Ganesh Venayagamoorthy, Donald C.


Tutorials


Sample of Conference Papers, Presentations, Seminars, Reports, Other Papers


