- Machine perception, pattern recognition systems, learning and adaptation, adaptive pattern recognition.

- Statistical pattern recognition: Bayesian decision theory, maximum likelihood and Bayesian estimation, parametric and nonparametric techniques, linear discriminant functions.

- Unsupervised learning and clustering

- Neural Networking and adaptive pattern recognition, linear network structure, and mathematical representation, feed forward network and back propagation, the Hopfield approach, self-organizing networks and unsupervised learning.