



Value of Information Sharing in Networked Signal Detection

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- Multi-sensor signal detectors and estimators often use the eigenspectrum of a Gram matrix formed from vectors of sensor measurements
- Its elements are inner products from all sensor pairs
- In networked settings, the inner products can be formed locally by sharing of data between nodes in direct communication with each other
- When the network graph is incomplete, some elements of the Gram matrix cannot be formed locally

This work **quantifies the value of data sharing** between nodes in a sensor network in terms of the difference in detection performance that results from replacing the true data on the edge between the nodes with a maximum-entropy surrogate value

Reference: *L. Crider and D. Cochran, "Effects of network topology on the conditional distributions of surrogated generalized coherence estimates," Asilomar Conference on Signals, Systems, and Computers, November 2014.*

