Journal watch
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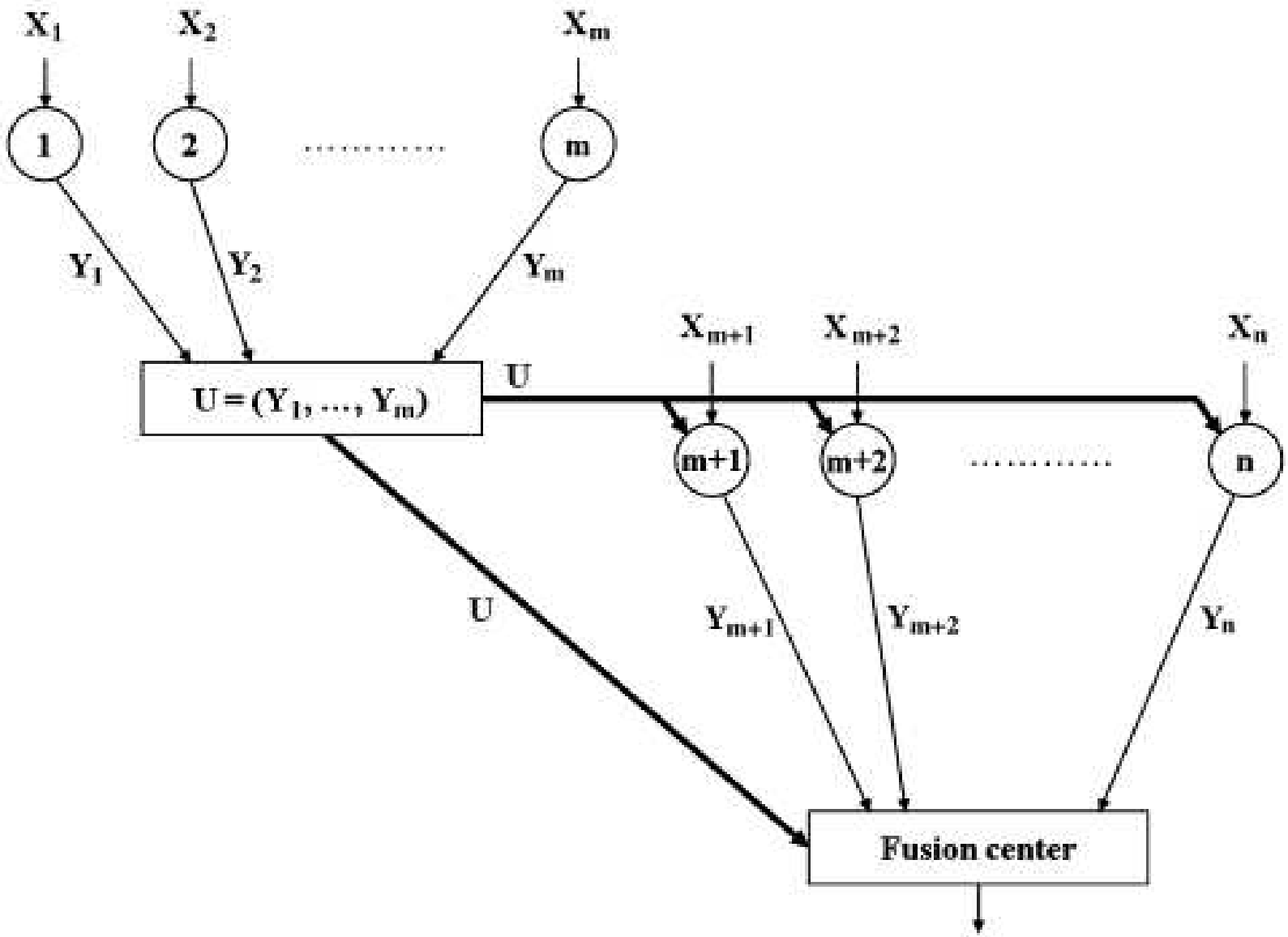
On Decentralized Detection With Partial Information Sharing Among Sensors

Authors:
O. Patrick Kreidl, John N. Tsitsiklis and Spyros I. Zoumpoulis
MIT

- Study of Decentralized detection with feedback in asymptotic regime
  - New network architecture (called Daisy chain) introduced
  - Neyman-Pearson framework considered
  - Non-star, non-tree architecture
  - Partial feedback architecture
- Highlights
  - Framework for studying error exponents in feedback case
  - Main Result: Additional information feedback present in daisy chain does not result in performance improvement: error exponent is same as in the star architecture with the same number of sensors
  - Opens the door for analysing some other non-star, non-tree architectures


X1
X2
Xm
1
2
m
Y1
Y2
Ym
U = (Y1, ..., Ym)
U
Xm+1
Xm+2
Xn
m+1
m+2
n
U
Ym+1
Ym+2
Yn
Fusion center

Does Frequent Low Resolution Feedback Outperform Infrequent High Resolution Feedback for Multiple Antenna Beamforming Systems?

Authors:
Taejoon Kim, David J. Love, and Bruno Clerckx
Purdue University, Purdue University, Samsung Advanced Institue of Technology

- How to adapt limited feedback schemes under chaning channel conditions (mobility); MISO system, single user
  - Feedback done once per ”feedback period”
  - Time evolution of channel is modeled as a first order markov process
- Feedback update period, feedback rate should scale with temporal correlation
- Theoretical analysis verifies that infrequent high resolution feedback is sometimes preferable to frequent low resolution feedback

Sampling and Recovery of Pulse Streams

Authors:
Chinmay Hegde and Richard G. Baraniuk
RICE

- CS-framework for pulse streams is considered
  - S-sparse signal convolved with F-sparse impulse response
  - Conventional CS-framework with need M = O(SF log(N)) measurements
- Proved that (S+F)logN random measurements will do the job
- Recovery algorithms: Have to retrive both the signal and impulse response
  - Algorithms have been proposed under some restrictions on the signals

Channel Matrix Recursion for Blind Effective Channel Order Estimation

Authors:
Serkan Karaktk and T. Engin Tuncer
Middle East Technical University, Ankara, Turkey

- Blind channel est. algorithms are sensitive to incorrect channel order estimates
- Blind Channel order estimation algorithm (called CMR) is proposed
  - Integrated with LSS, an alg for blind channel coeff estimation
  - Under no noise conditions, guranteed to find true channel order
  - In presence noise, better than alternative approaches
- Based on relation between estimated channel matrix for different orders
  - Estimated channel matrices for L and L=1 are related via a Toeplitz matrix
  - A cost function based on deviation from Toeplitz matrix is computed and a minimization of such cost function provides the true order

Channel-Robust Classifiers
Hyrum S. Anderson, Maya R. Gupta, Eric Swanson and Kevin Jamieson

Model Selection for Sinusoids in Noise: Statistical Analysis and a New Penalty Term
Boaz Nadler and Aryeh (Leonid) Kontorovich

The Group Lasso for Stable Recovery of Block-Sparse Signal Representations
Xiaolei Lv, Guoan Bi and Chunru Wan