

## **Project III**

Fall 2007

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The purpose of Project III is to allow you the opportunity to examine a paper from the recent literature (published since 1999). You will give an oral report about the paper you select on Wednesday, December 12, 2007. Written reports are due the same evening. The formats of the written and oral reports (as discussed in class) are summarized below:

### Written report:

Your written report should include the following:

- Introduction
- Summary of the results contained in the paper. You should present the relevant details, but you can simply reference any lengthy derivations in the paper.
- Explanation of what you did to investigate how the algorithm works. This section should describe any Matlab simulations or other analysis you implemented.
- Critique of the paper. You should comment on both the technical aspects of the paper and the quality of the writing. Regarding the technical aspects, you should consider these questions:
  - How does the algorithm perform?
  - Does it do what the authors claim? Why or why not?
  - Could the approach be improved? If so, how?
- Short section describing what you learned from this project.

### Oral report:

You will have 9 minutes to present your paper. There will be 2 minutes for audience questions. Time limits will be strictly enforced. Your talk should briefly summarize the paper, explain the results of your analysis, and present the conclusions you drew from your critique of the paper. Remember that time is limited, thus you will need to be selective about what you present.

Electronic copies of the presentations (in Powerpoint or PDF format) should be emailed to Prof. Wage by 2pm on Wednesday, December 12.

Presentations will start promptly at 4:30pm on Wednesday. The order of the presentations will be announced in early December. Please arrive on time and plan to attend all presentations. Points may be deducted from your report if you arrive late or leave early.

Order of presentations for Wednesday, 12/12/2007:

1. Ghadi Salem: "On the Cramer-Rao Bound for Model-Based Spectral Analysis," Simon Sando, Amit, Mitra, Petre Stoica IEEE Signal Processing Letters, Vol 9, No 2, Feb 2002.
2. Weiwei Zhou: "Signal processing for wideband smart antenna array applications," Tuan Do-Hong, and Peter Russer, IEEE Microwave magazine, vol. 5, pp. 57-67, Mar 2004.
3. Chris Hulbert: "Adaptive port-starboard beamforming of triplet sonar arrays," M. Groen, J. Beerens, S.P. Been, R. Doisy, Y. Noutary, E., IEEE Journal of Oceanic Engineering, vol. 30, April 2005.
4. Phil Tamburello: "Principal components, covariance matrix tapers, and the subspace leakage problem," Guerri, J.R., Bergin, J.S., IEEE Transaction on Aerospace and Electronic Systems, vol. 38, Issue 1, Jan. 2002, Page(s):152 - 162.
5. Brian Drost: "Uniform Circular Arrays for Smart Antennas", Ioannides and Balanis, IEEE Antennas and Propagation Magazine, August 2005.
6. Charlie Lyon: "Wide-Band Smart Antenna Design Using Vector Space Projection Methods," Junjie Gu, Henry Stark, and Yongyi Yang, IEEE Trans. on Antennas and Propagation, vol. 52(12), Dec 2004.
7. Christian Hernaez: "An algorithm for computing the Pisarenko vector," Hasan, M.A., Sensor Array and Multichannel Signal Processing Workshop Proceedings, 2002 , pp. 23-27, 4-6 Aug. 2002.
8. Brad Gable: "Reduced complexity covariance matrix estimate for subspace-based array processing," Marino, C.S.; Chau, P.M., Signals, Systems and Computers, 2003. Conference Record of the Thirty-Seventh Asilomar Conference on , vol.1, pp. 790-794 Vol.1, 9-12 Nov. 2003.
9. Michael Fisher: "Time-Frequency Based Approach for Analysis and Synthesis of Emotional Voice", Kobayashi and Wade, IEEE EUROCON 2005.
10. Joseph McKinney: "Multi-rate adaptive beamforming (MRABF)," Cox, H., Sensor Array and Multichannel Signal Processing Workshop. 2000. Proceedings of the 2000 IEEE , vol., no., pp.306-309, 2000.
11. Kim Okinsky: "Adaptive beamforming with parametric estimation of the correlation matrix," Santos, E.; Zoltowski, M.
12. Matt Kauppi: "Beamforming based on spatial-wavelet decomposition," Wen Xu; Te-Chih Liu; Schmidt, H., Sensor Array and Multichannel Signal Processing Workshop Proceedings, 2002 , vol., no., pp. 480-484, 4-6 Aug. 2002.
13. Omar Ghowrwal: "New methods for computing the Pisarenko vector," Shaer, B.R.; Hasan, M.A., Acoustics, Speech, and Signal Processing, 2002. Proceedings. (ICASSP '02). IEEE International Conference on , vol.3, no., pp. III-3033-III-3036 vol.3, 2002.
14. Hossein Roufarshbaf: "Blind Channel Approximation:"Effective Channel Order Determination", A. P. Liavas, P. A. Regalian and J. P. Delmas, IEEE Trans. on Signal Processing, vol. 47(12), Dec 1999.