

ASAP 2006

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- Theme
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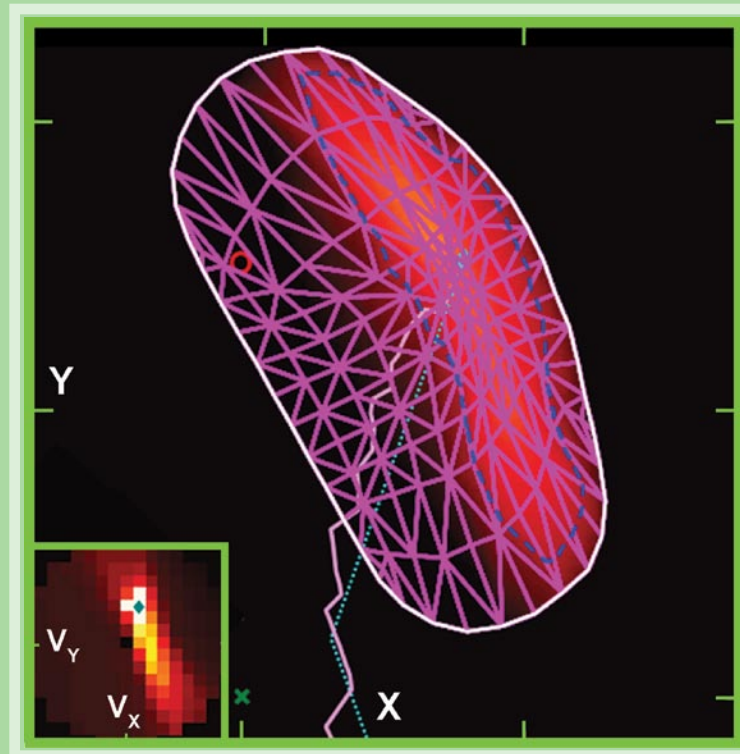
*Proceedings of the
Fourteenth Annual*

Adaptive Sensor Array Processing Workshop

Project Report
ASAP-14
Volume I
ESC-TR-2006-066

H. Musto
Editor

15 September 2006



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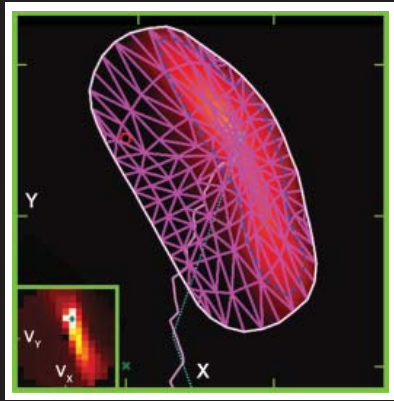


Prepared for the Defense Advanced Research Projects Agency, the U.S. Air Force Electronic Systems Center, and the Department of the Navy under Air Force Contract FA8721-05-C-0002.

Held at
MIT Lincoln Laboratory 
6-7 June 2006

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Adaptive Sensor Array Processing Workshop



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Held at
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6–7 June 2006

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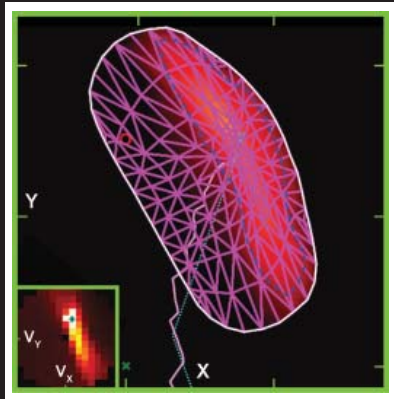
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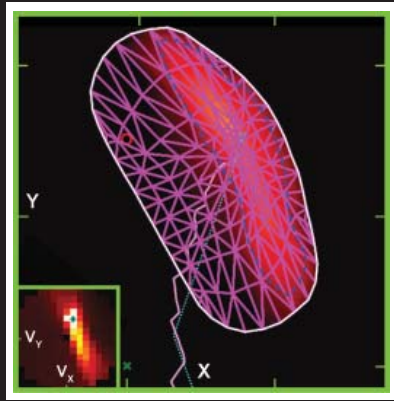
ASAP 2006 is sponsored jointly by the DARPA Special Projects Office, the Electronic Systems Center, Hanscom Air Force Base, the Office of Naval Research, and the NAVSEA Program Executive Office for Integrated Warfare Systems (PEO IWS 2.0 and 5). The workshop serves to encourage the cross fertilization of ideas between government, industry, and academia, and strives to be a forum of exchange for researchers across communities. We strive to be a forum where researchers demonstrate algorithm and system performance using experimental field data.

The 2006 ASAP workshop had sessions on adaptive radar, adaptive sonar, adaptive communications, adaptive detection and estimation, tracking, advanced topics including distributed sensing and adaptive SAR, as well as posters covering a wide range of topics in adaptive systems.

On behalf of the workshop organizing committee, we thank you for your participation in ASAP 2006.

Steven Smith, ASAP 2006 General Chairman
Christ Richmond, ASAP 2006 Technical Chairman

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S. Smith / MIT Lincoln Laboratory

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02 MIMO Radar: Resolution, Performance, and
Waveforms
Abstract | Presentation

S. Pohlig / MIT Lincoln Laboratory

D. Bliss / MIT Lincoln Laboratory
K. Forsythe / MIT Lincoln Laboratory
G. Fawcett / MIT Lincoln Laboratory

03 MIMO Radar: Diversity Means Superiority
Abstract | Presentation | Paper

J. Li / University of Florida
P. Stoica / Uppsala University

04 Detection-Estimation of Gaussian Sources for
Under-Sampled Training Conditions: Practical
HF OTHR Application Results
Abstract | Presentation

B. Johnson / RLM Management Pty. Ltd.
and Univ. of South Australia, ITR
Y. Abramovich / DSTO

05 MIMO-Radar Application to Moving Target
Detection in Homogeneous Clutter
Abstract | Presentation

N. Lehmann / New Jersey Institute of
Technology
A. Haimovich / New Jersey Institute of
Technology
R. Blum / Lehigh University
L. Cimini / University of Delaware
R. Valenzuela / Bell Labs, Lucent
Technologies

06 Wide-Angle SAR Image Formation with
Migratory Scattering Centers & Regularization
in Hough Space
Abstract | Presentation | Paper

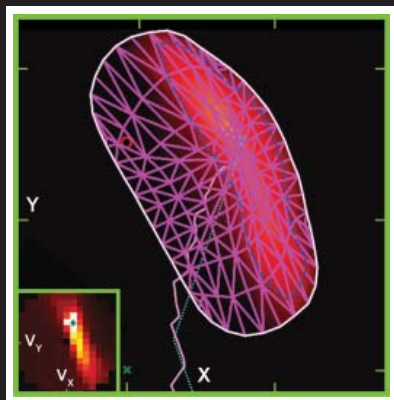
K. Varshney / MIT
M. Çetin / MIT
J. Fisher III / MIT
A. Willsky / MIT

Poster Précis

07 Adaptive Sensor Selection for Distributed
Fusion Management
Abstract | Poster | Paper

J. Lawson / Lockheed Martin
E. Hubbard / Lockheed Martin
H. Kagey / Lockheed Martin

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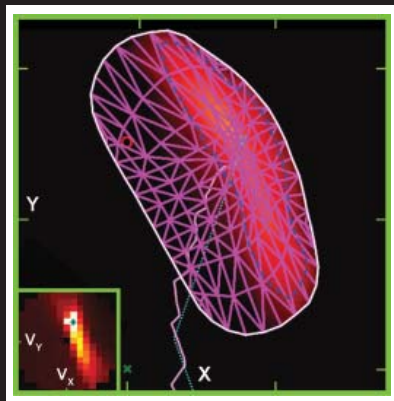
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| 08 | Diagonally Loaded AMF Detector: CFAR Properties & Loading Factor Selection for “Wishart” & “Anti-Wishart” Training Conditions
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B. Johnson / RLM Management Pty. Ltd. and Univ. of South Australia, ITR
N. Spencer / CSSIP |
| 09 | MISO Precoding for Temporal and Spatial Focusing
Abstract Poster Paper | R. Daniels / The University of Texas at Austin
R. Heath, Jr. / The University of Texas at Austin |
| 10 | Generalized Likelihood Ratio Methods for Pre-Detection Fusion in Multistatic Radar Systems
Abstract Poster | A. Jaffer / Raytheon
B. Evans / Raytheon
P. Zulch / AFRL, SNRT |
| 11 | Synthetic Aperture Radar Imaging and Waveform Design for Arbitrary Flight Trajectory in the Presence of Noise and Clutter
Abstract Poster | B. Yazici / Rensselaer Polytechnic Inst.
M. Cheney / Rensselaer Polytechnic Inst.
C. Yarman / Rensselaer Polytechnic Inst. |
| 12 | Snapshot Cognizant Detection of Signals
Abstract Poster | R. Nadakuditi / MIT
D. Edelman / MIT |
| 13 | Concurrent Detection and Tracking for GMTI
Abstract Poster Paper | R. Deming / Anteon Corp. / AFRL, SNHE
L. Perlovsky / AFRL, SNHE |

Session 1B: Adaptive Communications I

- | | | |
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| 14 | System Identification for Underwater Coherent Acoustic Communications: New Insights and Approaches for Addressing Sparse and Rapidly Fluctuating Channels
Abstract Presentation | T. Marzetta / Bell Labs, Lucent Technologies
W. Li / Woods Hole Oceanographic Institute
J. Presig / Woods Hole Oceanographic Institute |
| 15 | Sparse Multipath Wireless Channels: Modeling and Implications
Abstract Presentation Paper | A. Sayeed / Univ. of Wisconsin, Madison |

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D. Bliss / MIT Lincoln Laboratory
K. Forsythe / MIT Lincoln Laboratory

17 Equalization of OFDM under Time-Varying Channel Conditions
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M. Zoltowski / Purdue University
D. Haessig / BAE Systems

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S. Kraut / MIT Lincoln Laboratory

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C. Richmond / MIT Lincoln Laboratory

19 An Improved Weighted MUSIC Algorithm for Small Sample Size Scenarios
Abstract | Presentation | Paper

X. Mestre / Centre Tecnològic de
Telecomunicacions de Catalunya

20 Capon-MVDR Spectral Estimation from Singular Data Covariance Matrix, with No Diagonal Loading
Abstract | Presentation | Paper

T. Marzetta / Bell Labs, Lucent
Technologies
S. Simon / Bell Labs, Lucent Technologies
H. Ren / Bell Labs, Lucent Technologies

Session 2B: Adaptive Sonar I

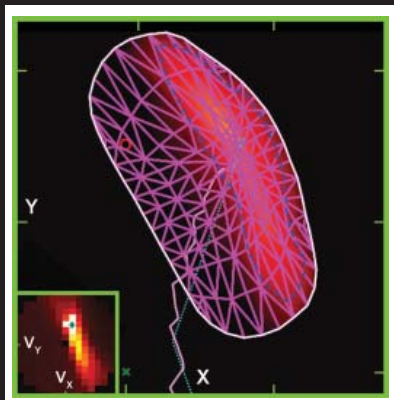
21 Robust Adaptive Suppression of Endfire Interference via Waveguide-Invariant Subspace Focusing
Abstract | Presentation

J. Krolik / Duke University
H. Tao / Duke University

22 Synthetic Stationary Array Processing
Abstract | Presentation | Paper

Y. Lee / SAIC
W. Lee / SAIC

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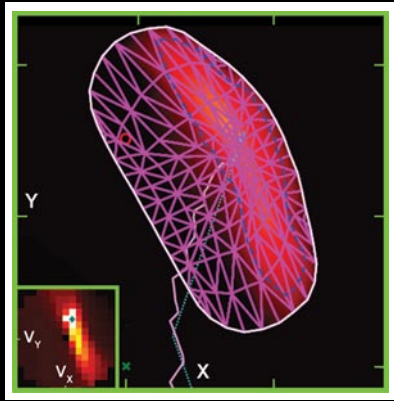
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M. Krichman / Raytheon Company
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D. Casbeer / Brigham Young University
P. Zhan / Brigham Young University |

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| 28 | Distributed Process over Adaptive Networks
Abstract Presentation Paper | C. Lopes / University of California
A. Sayed / University of California |
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Abstract Presentation Paper | A. Bolstad / University of Wisconsin
B. Van Veen / University of Wisconsin
R. Nowak / University of Wisconsin |
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Abstract Presentation | S. Blunt / University of Kansas
K. Gerlach / Naval Research Laboratory |

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ABOUT THIS REPORT

This CD is based on studies performed at Lincoln Laboratory, a center for research operated by the Massachusetts Institute of Technology. This work was sponsored by the Defense Advanced Research Projects Agency, the U.S. Air Force Electronics Systems Center, and the Department of the Navy under Air Force Contract FA8721-05-C-0002.

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This technical report has been reviewed and is approved for publication.

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