

Institute of Acoustics

International Conference on Synthetic Aperture Sonar and Synthetic Aperture Radar 2006

Proceedings of the Institute of Acoustics
Volume 28, Part 5

September 11-12, 2006
Lerici, Italy

Printed from e-media with permission by:

Curran Associates, Inc.
57 Morehouse Lane
Red Hook, NY 12571
www.proceedings.com

ISBN: 978-1-60423-634-7

Some format issues inherent in the e-media version may also appear in this print version.

Institute of Acoustics

International Conference on Synthetic Aperture Sonar and
Synthetic Aperture Radar
2006

ISSUES IN RADAR AND SONAR SIGNAL PROCESSING R Klemm, FGAN, Germany	1
SIGNAL PROCESSING IN SPACE-SURFACE BISTATIC SYNTHETIC APERTURE RADAR M Cherniakov, R Saini, M Antoniou, R Zuo, J Edwards, University of Birmingham	10
FRONT-SCAN SONAR USING SYNTHETIC APERTURE F Mosca, F Jean, IXSEA SAS, France	16
SHADOWS, A SYNTHETIC APERTURE SONAR, BY IXSEA F Jean, IXSEA SAS, France	24
ADVANCES IN RADAR DETECTION OF MOVING TARGETS FROM AIR-SPACE-CRAFT PLATFORMS P Lombardo, F Colone, University of Rome, Italy (Not Available)	N/A
IMAGERY FROM MULTI-FREQUENCY SAS: A COMPARISON OF SIMULATED AND EXPERIMENTAL RESULTS P T Gough, M A Noonchester, A J Hunter, M P Hayes, University of Canterbury, NZ	31
INTERFEROMETRIC SAS: A COMPARISON OF SIMULATED AND EXPERIMENTAL RESULTS A J Hunter, P T Gough, M P Hayes, University of Canterbury, NZ	39
SIGNAL PROCESSING FOR THE SENSOTEK INTERFEROMETRIC SAS: LESSONS LEARNED FROM HUGIN AUV TRIALS R E Hansen, H J Callow, T O Sæbø, P E Hagen, Norwegian Defence Research Establishment, Norway; B Langli, Kongsberg Maritime AS, Norway.....	47
BISTATIC SAS IMAGING STUDIES S K Mitchell, K N Scarbrough, S P Pitt, The University of Texas at Austin, USA	57
HIGH RESOLUTION CIRCULAR SAS WITH CONTROLLED FOCUS S K Mitchell, K N Scarbrough, S P Pitt, The University of Texas at Austin, T L Kooij, Office of Naval Research	65
SAR AND SAS COMPARED – EQUALITIES, SIMILARITIES AND DIFFERENCES T Sparr, Norwegian defence Research Establishment	72
A COMPARATIVE REVIEW OF HIGH RESOLUTION SYNTHETIC APERTURE SONAR AND RADAR RESEARCH M A Pinto, A Bellettini, R D Hollett, NATO Undersea Research Centre, Italy	80

PARAMETRIC SYNTHETIC APERTURE SONAR FOR THE DETECTION OF BURIED MINES – A FEASIBILITY STUDY	
S Dugelay, DSTL Winfrith, UK, S A Chapman, R Orme, Ultra Electronics Ltd, UK.....	89
SAS IMAGING USING CIRCULAR SCANNING	
G Shippey, Queensferry Consultants Ltd, A Cederholm, I Karasalo, M Jönsson, J Pihl, Swedish Defence Research Agency (FOI)	97
PROBABILISTIC MODELING OF SYNTHETIC APERTURE SONAR AND RADAR IMAGE TEXTURES	
V L Myers , NATO Undersea Research Centre, Italy	103
MODEL BASED CLASSIFICATION – A POSSIBLE APPROACH FOR TARGET CLASSIFICATION IN SAS AND SAR?	
J M Bell, Y Petillot, Heriot-Watt University, S Reed, SeeByte Ltd UK	113
INTERFEROMETRIC SYNTHETIC APERTURE SONAR FOR SMALL DIAMETER UNMANNED UNDERWATER VEHICLES	
D C Brown, D A Cook, Naval Surface Warfare Center, USA	121
STATISTICAL ANALYSIS OF MSTAR GROUND DATA	
M Greco, F Gini, University of Pisa, Italy	127
AUTOMATIC TARGET RECOGNITION IN SAR SCENARIOS BASED ON A NOVEL CLASSIFICATION SCHEME	
W Middelman, A Ebert, U Thoennessen, FGAN-FOM, Germany	135
AN INVESTIGATION OF THE EFFECT OF ENVIRONMENTAL FLUCTUATIONS ON SYNTHETIC APERTURE AND LONG ARRAYS	
G J Heald, J D Smith, Defence Science and Technology Laboratory, UK	143
BLIND SEPARATION OF SIGNAL AND MULTIPATH INTERFERENCE FOR SYNTHETIC APERTURE SONAR	
I P Kirsteins, Naval Undersea Warfare Center, USA	152
ESTIMATING ALONG TRACK DISPLACEMENT USING REDUNDANT PHASE CENTERS	
J W Oeschger, Naval Surface Warfare Centre, USA (Not Available).....	160
FAST FACTORISED BACKPROJECTION ALGORITHM FOR PROCESSING OF SAR DATA	
P-O Fröling, L M H Ulander, D Murdin, Swedish Defence Research Agency (FOI).....	168
SYNTHETIC APERTURE SONAR MOTION ESTIMATION USING NONLINEAR LEAST SQUARES	
D A Cook, D C Brown, J E. Fernandez, Naval Surface Warfare Center, USA	176
A SYNTHETIC APERTURE SONAR MICRONAVIGATION KALMAN FILTER	
J D Campbell, J R Pearson, Applied Signal Technology, Inc., USA.....	183

FAST FACTORISED BACK PROJECTION FOR SYNTHETIC APERTURE IMAGING AND WIDE-BEAM MOTION COMPENSATION	
M J Callow, R E Hansen, Norwegian Defence Research Establishment, Norway	191
ABOUT THE DIRECTIVITY GAIN OF PASSIVE SYNTHETIC APERTURE AND MODEL-BASED ARRAY PROCESSING	
D Billon, J-M Passerieux Thales Underwater Systems SAS, France	201
SPOTLIGHT SYNTHETIC APERTURE SONAR PROCESSING ON EXPERIMENTAL DATA	
B A J Quesson, J C Sabel, J Groen, TNO Defence, Security and Safety, The Netherlands	209
FPGA BASED REAL TIME SYNTHETIC APERTURE SONAR PROCESSING FOR AUVS	
S Banks, S Charles, A Willcox, Bloomsbury DSP Ltd.....	217
ACTIVE CONTROL OF PASSIVE OCEAN ACOUSTIC FIELDS BY PROP-DRIVEN AUVS AND UNDERWATER GLIDERS	
G L D'Spain, E Terrill, R Zimmerman, S A Jenkins, S D Lynch, Scripps Institution of Oceanography, USA & J C Luby, University of Washington, USA	225
ACOUSTIC SCATTERING PROBLEMS INVOLVING SMART OBSTACLES	
F Zirilli, Università di Roma, Italy.....	233
UNDER SAMPLED POST-PROCESSOR SYNTHETIC APERTURE SONAR PROCESSING FOR IMPROVED IMAGE ENHANCEMENT	
K D Heaney, C J Gedney, OASIS, Inc., G S Edelson, BAE SYSTEMS	242
ASSESSMENT OF CLASSIFICATION BASED ON SIMULATED SYNTHETIC APERTURE SONAR IMAGES	
A Cederholm, M Jönsson, E Parastates & I Karasalo, Swedish Defence Agency, Sweden.....	251
SPATIAL TEXTURE ANALYSIS OF SAR DATA BY ANISOTROPIC GAUSSIAN KERNELS	
O D'Hondt, L Ferro-Famil, E Pottier, University of Rennes, France	257
SYNTHETIC APERTURE SONAR SPECKLE REDUCTION USING PARTIAL DIFFERENTIAL EQUATION TECHNIQUES	
D A Cook, Naval Surface Warfare Center, USA	265
SMALL OBJECT DETECTION WITH A DUAL FREQUENCY SYNTHETIC APERTURE SONAR	
J E Piper & R Lim, Naval Surface Warfare Center, USA	273
TARGET INJECTION FOR SAS CAD/CAC TRAINING AND TESTING	
A Putney, J K Harbaugh, M A Nelson, Applied Signal Technology, USA	282
IMPLEMENTATION AND OPTIMIZATION OF A SAR PROCESSOR BASED ON A SUBSPACE DETECTOR. APPLICATION TO MAN MADE TARGET DETECTION IN A FOREST.	
R Durand, L Thirion, SONDRRA Superlec, France, G Ginolhac, P Forster, University Paris X, France	290
EVALUATION OF OBJECT SPECULAR REFLECTION IN ACOUSTICAL IMAGING, WITH SPECIAL EMPHASIS ON SYNTHETIC APERTURE SYSTEMS	
M Granara, Whitehead Alenia Sistemi Subacquei, Italy, M Palmese, A. Trucco, University of Genoa, Italy	298

TOPICS IN AUTOMATED TARGET RECOGNITION FOR HIGH RESOLUTION SONAR IMAGERY M A Pinto, V Myers, NATO Undersea Research Centre, Italy	305
FREQUENCY DIVERSITY VS LARGE BANDWIDTH RECONSTRUCTION: INFORMATION CONTENT FOR NETTED SENSOR ATR USING ISAR IMAGES M Vespe, C J Baker, H D Griffiths, University College London, UK	312
FILLING THE GAP BETWEEN MANUFACTURERS' DECLARED VALUES AND HAND-ARM VIBRATION EMISSION UNDER REAL WORKING CONDITIONS N.J. Mansfield, Environmental Ergonomics Research Centre, Loughborough University, Loughborough, Leicestershire, UK	320