

2019 22nd International Conference on Information Fusion (FUSION 2019)

**Ottawa, Ontario, Canada
2 – 5 July 2019**

Pages 1-694



**IEEE Catalog Number: CFP19FUS-POD
ISBN: 978-1-7281-1840-6**

**Copyright © 2019, ISIF – International Society of Information Fusion
All Rights Reserved**

****** This is a print representation of what appears in the IEEE Digital Library. Some format issues inherent in the e-media version may also appear in this print version.***

| | |
|-------------------------|-------------------|
| IEEE Catalog Number: | CFP19FUS-POD |
| ISBN (Print-On-Demand): | 978-1-7281-1840-6 |
| ISBN (Online): | 978-0-9964527-8-6 |

Additional Copies of This Publication Are Available From:

Curran Associates, Inc
57 Morehouse Lane
Red Hook, NY 12571 USA
Phone: (845) 758-0400
Fax: (845) 758-2633
E-mail: curran@proceedings.com
Web: www.proceedings.com

CURRAN ASSOCIATES INC.
proceedings
.com

TABLE OF CONTENTS

| | |
|--|-----|
| INTERACTING T-S FUZZY MODEL PARTICLE FILTER | 1 |
| <i>Liang-Qun Li ; Xiao-Li Wang ; Wei-Xin Xie</i> | |
| ONLINE MULTI-OBJECT VISUAL TRACKING USING A GM-PHD FILTER WITH DEEP APPEARANCE LEARNING | 7 |
| <i>Nathanael L. Baisa</i> | |
| DECISION SEQUENCING AND DISTRIBUTED DATA ASSOCIATION | 15 |
| <i>Stefano Coraluppi ; Laura Vertatschitsch ; Craig Carthel</i> | |
| GRAPH-BASED TRACKING WITH UNCERTAIN ID MEASUREMENT ASSOCIATIONS | 23 |
| <i>Stefano P. Coraluppi ; Craig A. Carthel ; Alan S. Willsky</i> | |
| ROBUST PARTICLE FILTERING VIA BAYESIAN NONPARAMETRIC OUTLIER MODELING (POSTER) | 31 |
| <i>Bin Liu</i> | |
| AN APPLICATION OF POLYMORPHIC MODELS FOR THE PURPOSE OF THREAT ASSESSMENT IN SWARM-BASED RECOGNITION SYSTEM | 36 |
| <i>Ksawery Krenc</i> | |
| APPROXIMATION OF BASIC BELIEF ASSIGNMENT BASED ON FOCAL ELEMENT COMPATIBILITY | 42 |
| <i>Qing Wei ; Xinde Li ; Jean Dezert</i> | |
| A NEUTROSOPHIC SET BASED FAULT DIAGNOSIS METHOD BASED ON POWER AVERAGE OPERATOR (POSTER) | 50 |
| <i>Yu Zhong ; Xinyang Deng ; Wen Jiang</i> | |
| STRONG TRACKING FILTERS: DERIVATION AND IMPROVED HEURISTIC | 56 |
| <i>David Frederic Crouse</i> | |
| ROOS' MATRIX PERMANENT APPROXIMATION BOUNDS FOR DATA ASSOCIATION PROBABILITIES (POSTER) | 64 |
| <i>Lingji Chen</i> | |
| ASSESSMENT OF TRUST IN OPPORTUNISTIC REPORTING USING BELIEF FUNCTIONS | 68 |
| <i>Valentina Dragos ; Jean Dezert ; Kellyn Rein</i> | |
| INFORMATIVE PATH PLANNING IN THE PRESENCE OF ADVERSARIAL OBSERVERS | 76 |
| <i>Per Boström-Rost ; Daniel Axehill ; Gustaf Hendeby</i> | |
| EXTRACTION OF MOTION ARTIFACTS FROM THE MEASUREMENTS OF A WIRELESS ELECTROCARDIOGRAM USING TENSOR DECOMPOSITION | 83 |
| <i>Jannis Lilienthal ; Walteneus Dargie</i> | |
| WHY YOUR HEART WAS BEATING: POSTER | 91 |
| <i>Walteneus Dargie</i> | |
| SAR ATR BY DECISION FUSION OF MULTIPLE RANDOM CONVOLUTION FEATURES | 97 |
| <i>Yu Gu ; Ying Xu ; Jun Liu</i> | |
| PROBABILITY DISTRIBUTION FOR ASSOCIATION OF MANEUVERING VEHICLES | 105 |
| <i>Brita H. H. Gade ; Carina N. Vooren ; Morten Kloster</i> | |
| COMBINING DEEP LEARNING AND MODEL-BASED METHODS FOR ROBUST REAL-TIME SEMANTIC LANDMARK DETECTION | 112 |
| <i>Benjamin Naujoks ; Patrick Burger ; Hans-Joachim Wuensche</i> | |
| A POISSON MULTI-BERNOULLI FILTER WITH TARGET SPAWNING | 120 |
| <i>Zhenzhen Su ; Hongbing Ji ; Yongquan Zhang</i> | |
| RADIO SOURCE LOCALIZATION USING RECEIVED SIGNAL STRENGTH IN A MULTIPATH ENVIRONMENT | 126 |
| <i>Shuai Sun ; Xuechi Wang ; Bill Moran ; Akram Al-Hourani ; Wayne S. T. Rowe</i> | |
| SIMPLIFICATION OF MULTI-CRITERIA DECISION-MAKING USING INTER-CRITERIA ANALYSIS AND BELIEF FUNCTIONS | 132 |
| <i>Jean Dezert ; Albená Tchamova ; Deqiang Han ; Jean-Marc Tacnet</i> | |
| A SIMPLIFIED FORMULATION OF GENERALIZED BAYES' THEOREM | 140 |
| <i>Jean Dezert ; Albená Tchamova ; Deqiang Han ; Thanuka Wickramaratne</i> | |
| FUSION BASED ESTIMATION OF THE A-PRIORI PROBABILITY DISTRIBUTION OF UNKNOWN NON-STATIONARY PROCESSES | 148 |
| <i>Marek Junghans ; Andreas Leich</i> | |

| | |
|---|-----|
| EFFECTS OF INTERDEPENDENCIES ON GAME-THEORETIC DEFENSE OF CYBER-PHYSICAL INFRASTRUCTURES..... | 156 |
| <i>Fei He ; Santhosh Chandrasekar ; Nageswara S. V. Rao ; Chris Y. T. Ma</i> | |
| PARTICLE FLOW FILTERS: BIASES AND BIAS AVOIDANCE | 164 |
| <i>David Frederic Crouse</i> | |
| ENTROPY-BASED METRICS FOR URREF CRITERIA TO ASSESS UNCERTAINTY IN BAYESIAN NETWORKS FOR CYBER THREAT DETECTION | 172 |
| <i>V. Dragos ; J. Ziegler ; J. P De Villiers ; A. De Waal ; A-L. Joussetme ; E. Blasch</i> | |
| SPOOKY EFFECT IN OPTIMAL OSPA ESTIMATION AND HOW GOSPA SOLVES IT | 180 |
| <i>Ángel F. García-Fernández ; Lennart Svensson</i> | |
| BISTATIC TRACK ASSOCIATION BASED ON SINGULAR SPECTRUM ANALYSIS | 188 |
| <i>Pavel Kulmon ; Petra Štukovská</i> | |
| DEEP CORRELATION FILTER BASED REAL-TIME TRACKER | 195 |
| <i>Lei Pu ; Xinxi Feng ; Zhiqiang Hou ; Wangsheng Yu ; Yufei Zha ; Sugang Ma</i> | |
| MULTI-TARGET TRACKING ALGORITHM BASED ON MULTI-SOURCE CLUSTERING IN DISTRIBUTED RADAR NETWORK (POSTER) | 203 |
| <i>Qiao Shi ; Tianxian Zhang ; Guolong Cui ; Lingjiang Kong</i> | |
| AN OPTIMAL BIT ALLOCATION SCHEME FOR COOPERATIVE SPECTRUM SENSING IN COGNITIVE RADIO NETWORKS..... | 209 |
| <i>Junhai Luo ; Xiaoting He ; Man Wu ; Yanping Chen ; Yang Yang</i> | |
| GAUSSIAN IMPLEMENTATION OF THE MULTI-BERNOULLI MIXTURE FILTER..... | 217 |
| <i>Ángel F. García-Fernández ; Yuxuan Xia ; Karl Granström ; Lennart Svensson ; Jason L. Williams</i> | |
| ON COMBINING PROBABILISTIC AND SEMANTIC SIMILARITY-BASED METHODS TOWARD OFF-DOMAIN REASONING FOR SITUATIONAL AWARENESS | 225 |
| <i>Van Nguyen</i> | |
| SCHMIDT-KALMAN FILTER WITH POLYNOMIAL CHAOS EXPANSION FOR STATE ESTIMATION | 233 |
| <i>Yang Yang ; Han Cai ; Baichun Gong ; Robert Norman</i> | |
| HETEROGENEOUS FUSION OF AN IMM TRACK WITH MEASUREMENTS FROM DIFFERENT SOURCES..... | 241 |
| <i>Rong Yang ; Yaakov Bar-Shalom ; Gee Wah Ng</i> | |
| DEEPDA: LSTM-BASED DEEP DATA ASSOCIATION NETWORK FOR MULTI-TARGETS TRACKING IN CLUTTER..... | 249 |
| <i>Huajun Liu ; Hui Zhang ; Christoph Mertz</i> | |
| BAYESIAN EXTENDED OBJECT SMOOTHING FOR THE RANDOM MATRIX MODEL..... | 257 |
| <i>Karl Granström ; Jakob Bramstang</i> | |
| VEHICLE POSE ESTIMATION BASED ON EDGE DISTANCE USING LIDAR POINT CLOUDS (POSTER)..... | 265 |
| <i>Jihuang Yang ; Guoqi Zeng ; Wenguang Wang ; Yan Zuo ; Bin Yang ; Yisong Zhang</i> | |
| JOINTLY TRAINED VARIATIONAL AUTOENCODER FOR MULTI-MODAL SENSOR FUSION..... | 271 |
| <i>Timo Korthals ; Marc Hesse ; Jürgen Leitner ; Andrew Melnik ; Ulrich Rückert</i> | |
| SYSTEMATIC ANALYSIS OF THE PMBM, PHD, JPDA AND GNN MULTI-TARGET TRACKING FILTERS | 279 |
| <i>Julian Smith ; Florian Particke ; Markus Hiller ; Jörn Thielecke</i> | |
| SENSOR REGISTRATION AND TRACKING FROM HETEROGENEOUS SENSORS WITH BELIEF PROPAGATION..... | 287 |
| <i>David Cormack ; James R. Hopgood</i> | |
| ROBUST SEMANTIC SEGMENTATION IN ADVERSE WEATHER CONDITIONS BY MEANS OF SENSOR DATA FUSION..... | 295 |
| <i>Andreas Pfeuffer ; Klaus Dietmayer</i> | |
| PARTICLE FILTERING APPROACH FOR DATA ASSOCIATION | 303 |
| <i>Zoran Sjanic</i> | |
| DISTRIBUTED DETECTION OF GENERALIZED GAUSSIAN SPARSE SIGNALS WITH ONE-BIT MEASUREMENTS (POSTER)..... | 309 |
| <i>Xueqian Wang ; Gang Li ; Chen Quan ; Pramod K. Varshney</i> | |
| A PILOT STUDY ON DETECTING VIOLENCE IN VIDEOS FUSING PROXY MODELS | 314 |
| <i>Marc Roig Vilamala ; Liam Hiley ; Yulia Hicks ; Alun Preece ; Federico Cerutti</i> | |
| A MULTIPLE HYPOTHESIS APPROACH TO EXTENDED TARGET TRACKING | 322 |
| <i>Jean-François Bariant ; Llarina Lobo Palacios ; Muhammad Nassef Hassaan ; Charles Thin</i> | |
| LOG-LINEAR CHERNOFF FUSION FOR DISTRIBUTED PARTICLE FILTERING | 330 |
| <i>Nadav Lehrer ; Or Tsilil ; Avisly Carmi</i> | |

| | |
|---|-----|
| MODELING OF HUMAN INFORMATION PROCESSING IN HARD-SOFT FUSION (POSTER) | 339 |
| <i>Aditya Vempaty</i> | |
| RRT* TRAJECTORY SCHEDULING USING ANGLES-ONLY MEASUREMENTS FOR AUV RECOVERY | 345 |
| <i>Xuezhi Wang ; Simon Williams ; Daniel Angley ; Christopher Gilliam ; Trevor Jackson ; Richard Ellem ; Amanda Bessell ; Bill Moran</i> | |
| NOVEL ADAPTIVE DWELL SCHEDULING ALGORITHM FOR DIGITAL ARRAY RADAR BASED ON PULSE INTERLEAVING | 351 |
| <i>Xiaoying Lu ; Ting Cheng ; Han Peng ; Zishu He ; Huiyong Li</i> | |
| MULTI-ALGORITHMIC FUSION FOR RELIABLE AGE AND GENDER ESTIMATION FROM FACE IMAGES | 359 |
| <i>Philipp Terhörst ; Marco Huber ; Jan Niklas Kolf ; Naser Damer ; Florian Kirchbuchner ; Arjan Kuijper</i> | |
| THE DUAL-FREQUENCY POST-CORRELATION DIFFERENCE FEATURE FOR DETECTION OF MULTIPATH AND NON-LINE-OF-SIGHT ERRORS IN SATELLITE NAVIGATION | 367 |
| <i>Simon Ollander ; Friedrich-Wilhelm Bode ; Marcus Baum</i> | |
| EXPLOITING THE MOMENTARY DEPENDENCE OF RADAR OBSERVATIONS FOR NON-COOPERATIVE TARGET RECOGNITION | 375 |
| <i>Minna Väilä ; Juha Jylhä ; Marja Ruotsalainen ; Henna Perälä</i> | |
| DISTRIBUTED POWER MEAN FUSION | 381 |
| <i>Clark N. Taylor ; Adrian N. Bishop</i> | |
| DETECTING AND TRACKING SMALL MOVING OBJECTS IN WIDE AREA MOTION IMAGERY (WAMI) USING CONVOLUTIONAL NEURAL NETWORKS (CNNs) | 389 |
| <i>Yifan Zhou ; Simon Maskell</i> | |
| A ROLLOUT BASED PATH PLANNER FOR EMITTER LOCALIZATION | 397 |
| <i>Folker Hoffmann ; Hans Schily ; Alexander Charlish ; Matthew Ritchie ; Hugh Griffiths</i> | |
| DISTRIBUTED MULTIPLE HYPOTHESIS TRACKING IN FINITE POINT PROCESS FORMALISM: A SIMPLE TWO STATION CASE | 405 |
| <i>Shozo Mori ; Chee-Yee Chong ; Kc Chang</i> | |
| UNCERTAINTY ONTOLOGY FOR VERACITY AND RELEVANCE | 413 |
| <i>Erik P. Blasch ; Carlos C. Insaurralde ; Paulo Costa ; Alta De Waal ; J. Pieter De Villiers</i> | |
| ARTIFICIAL INTELLIGENCE IN USE BY MULTIMODAL FUSION | 421 |
| <i>Erik P. Blasch ; Uttam Majumder ; Todd Rovito ; Ali K. Raz</i> | |
| ADAPTIVE RESOURCE MANAGEMENT IN MULTI-TARGET TRACKING FOR COLLOCATED MIMO RADAR WITH SIMULTANEOUS MULTIBEAM | 429 |
| <i>Xuejiao Wei ; Ting Cheng ; Han Peng</i> | |
| TIME-OFFSET ESTIMATION IN MULTISENSOR TRACKING SYSTEMS | 437 |
| <i>Song Li ; Yongmei Cheng ; Daly Brown ; Ratnasingham Tharmarasa ; Gongjian Zhou ; Thia Kirubarajan</i> | |
| A NOVEL DP-TBD ALGORITHM FOR TRACKING SLOWLY MANEUVERING TARGETS USING VISAR IMAGE SEQUENCES | 445 |
| <i>Xiaoqing Tian ; Jing Liu ; Shuncheng Tan</i> | |
| A FAST COMPRESSED SENSING 3D SAR IMAGING METHOD BASED ON THE ADAPTIVE THRESHOLD | 452 |
| <i>Bokun Tian ; Xiaoling Zhang ; Liwei Dang ; Shunjun Wei</i> | |
| A NOVEL INTERACTING T-S FUZZY MULTIPLE MODEL BY USING UKF FOR MANEUVERING TARGET TRACKING | 458 |
| <i>Liang-Qun Li ; Da Zhao ; Cheng-Da Luo</i> | |
| GA-ML-PDA BASED TRACK INITIALIZATION WITH PASSIVE MULTISTATIC RADAR (POSTER) | 465 |
| <i>Yunfei Guo ; Zhuoer Tian ; Dongliang Peng ; Han Shentu ; Tongjing Sun ; Mengfan Xue</i> | |
| A ROBUST STUDENT'S T-BASED LABELED MULTI-BERNOULLI FILTER | 471 |
| <i>Wanying Zhang ; Yan Liang ; Feng Yang ; Linfeng Xu</i> | |
| CONTINUUM DETECTION AND PREDICTIVE-CORRECTIVE CLASSIFICATION OF CRACK NETWORKS | 477 |
| <i>J. Josiah Steckenrider ; Tomonari Furukawa</i> | |
| CASCADED BEARING ONLY SLAM WITH UNIFORM SEMI-GLOBAL ASYMPTOTIC STABILITY | 485 |
| <i>Elias Bjørne ; Tor Arne Johansen ; Edmund Førland Brekke</i> | |
| BALLISTIC TRAJECTORY ESTIMATION USING POLYNOMIAL CHAOS BASED SQUARE ROOT ENSEMBLE FILTER | 493 |
| <i>Tao Sun ; Ruixin Niu ; Mulugeta Haile</i> | |

| | |
|--|------------|
| A SQUARE-ROOT VERSION DISTRIBUTED NONLINEAR FILTER BASED ON INFORMATION CONSENSUS | 500 |
| <i>Jun Liu ; Yu Liu ; Kai Dong ; Shun Sun ; Ziran Ding ; Qichao Li</i> | |
| DERIVED HEADING USING LAGRANGE FIVE POINT DIFFERENCE METHOD AND FUSION (POSTER)..... | 508 |
| <i>B. Sindhu ; J. Valarmathi ; S. Christopher</i> | |
| EXTENDED KALMAN FILTER FOR MAGNETOMETER-FREE ESTIMATION OF SPACESUIT WEARER JOINT KINEMATICS USING INERTIAL MEASUREMENTS..... | 513 |
| <i>Young-Young Shen ; Allison P. Anderson</i> | |
| RAO-BLACKWELLISED POINT-MASS SMOOTHERS FOR A CLASS OF CONDITIONALLY LINEAR DYNAMIC MODELS | 521 |
| <i>J. Dunik ; O. Straka</i> | |
| ON FUSION OF PARTIAL ESTIMATES UNDER IMPLICIT PARTIAL KNOWLEDGE OF CORRELATION | 529 |
| <i>Jiri Ajgl ; Ondrej Straka</i> | |
| APPLICATION OF SVD FOR REMOVING MOTION ARTIFACTS FROM THE MEASUREMENTS OF A WIRELESS ELECTROCARDIOGRAM..... | 537 |
| <i>Waltenegus Dargie ; Jannis Lilienthal</i> | |
| STUDY OF PANSHARPENING METHODS APPLIED TO HYPERSPECTRAL IMAGES OF SEDIMENT CORES (POSTER)..... | 545 |
| <i>Kévin Jacq ; Didier Coquin ; Bernard Fanget ; Yves Perrette ; Maxime Debret</i> | |
| ON ATTITUDE REPRESENTATIONS FOR OPTIMIZATION-BASED BAYESIAN SMOOTHING..... | 551 |
| <i>Michael Lorenz ; Bertram Taetz ; Manon Kok ; Gabriele Bleser</i> | |
| SLAM BASED ON DOUBLE LAYER CUBATURE KALMAN FILTER | 559 |
| <i>Feng Yang ; Bo Jin ; Mengting Yan ; Yujuan Luo</i> | |
| EXTREMELY TINY SIAMESE NETWORKS WITH MULTI-LEVEL FUSIONS FOR VISUAL OBJECT TRACKING..... | 566 |
| <i>Yi Cao ; Hongbing Ji ; Wenbo Zhang ; Shahram Shirani</i> | |
| INFORMATION SECURITY ANALYSIS AS DATA FUSION | 573 |
| <i>Markus De Shon</i> | |
| JOINT RGB-POSE BASED HUMAN ACTION RECOGNITION FOR ANOMALY DETECTION APPLICATIONS | 581 |
| <i>Federico Angelini ; Syed Mohsen Naqvi</i> | |
| DISTRIBUTED INFORMATION FILTER FOR LINEAR SYSTEMS WITH COLORED MEASUREMENT NOISE | 588 |
| <i>Yanbo Yang ; Yuemei Qin ; Quan Pan ; Yanting Yang ; Zhi Li</i> | |
| ZERO-LEARNING FAST MEDICAL IMAGE FUSION | 595 |
| <i>Fayez Lahoud ; Sabine Süsstrunk</i> | |
| VEHICLE DISAMBIGUATION FROM MULTIPLE OBSERVATIONS | 603 |
| <i>Madison Wyatt ; Luke Perkins ; Gokul Subramanian ; Sarah Carpenter ; Michael Braun ; Stefano Coraluppi</i> | |
| SIMULTANEOUS STATE AND PARAMETER ESTIMATION WITH TRAJECTORY SHAPE CONSTRAINTS (POSTER)..... | 611 |
| <i>Keyi Li ; Gongjian Zhou ; Thia Kirubarajan ; Jiazhou He</i> | |
| SQUARE ROOT PARTIAL-UPDATE KALMAN FILTER..... | 617 |
| <i>J. Humberto Ramos ; Kevin M. Brink ; John E. Hurtado</i> | |
| A SMART BODY AREA NETWORK FOR DIABETES MANAGEMENT | 625 |
| <i>Richard W. Jones</i> | |
| OBJECT FUSION TRACKING BASED ON VISIBLE AND INFRARED IMAGES USING FULLY CONVOLUTIONAL SIAMESE NETWORKS | 633 |
| <i>Xingchen Zhang ; Ping Ye ; Dan Qiao ; Junhao Zhao ; Shengyun Peng ; Gang Xiao</i> | |
| JOINT MULTI-TARGET TRACKING AND PARAMETER ESTIMATION WITH THE SECOND-ORDER FACTORIAL CUMULANT FILTER | 641 |
| <i>Daniel E. Clark ; Mark Campbell</i> | |
| TARGET THREAT ASSESSMENT BASED ON ENSEMBLES OF MULTI-CRITERIA DECISION MAKING METHODS (POSTER)..... | 649 |
| <i>Chi-Hong Cheung ; Rahim Jassemi-Zargani</i> | |
| PARTICLE FILTERING FOR AUTOMOTIVE: A SURVEY..... | 655 |
| <i>Karl Berntorp ; Stefano Di Cairano</i> | |
| PERFORMANCE BOUNDS IN POSITIONING WITH THE VIVE LIGHTHOUSE SYSTEM..... | 663 |
| <i>Marcus Greiff ; Anders Robertsson ; Karl Berntorp</i> | |

| | |
|--|-----|
| FUSION-BASED WAYFINDING PREDICTION MODEL FOR MULTIPLE INFORMATION SOURCES | 671 |
| <i>Rohit K. Dubey ; Samuel S. Sohn ; Christoph Hoelscher ; Mubbasir Kapadia</i> | |
| GAUSSIAN MIXTURES MATCH AND FUSION ALGORITHMS FOR MULTI-SENSOR MULTI-TARGET TRACKING | 679 |
| <i>Han Shen-Tu ; Yingjiao Rong ; Yunfei Guo ; Ji-An Luo ; Yifang Shi</i> | |
| DOPPLER BEARING TRACKING WITH FUSION FROM HETEROGENEOUS PASSIVE SENSORS: ESM/EO AND ACOUSTIC | 687 |
| <i>Jessica Koon Yan Goh ; Rong Yang</i> | |
| ENHANCED MULTIPLE MODEL GPB2 FILTERING USING VARIATIONAL INFERENCE | 695 |
| <i>Xi Li ; Yi Liu ; Lyudmila Mihaylova ; Le Yang ; Steve Weddell ; Fucheng Guo</i> | |
| JOINT CALIBRATION OF INERTIAL SENSORS AND MAGNETOMETERS USING VON MISES-FISHER FILTERING AND EXPECTATION MAXIMIZATION | 704 |
| <i>Roland Hostettler ; Ángel F. García-Fernandez ; Filip Tronarp ; Simo Särkkä</i> | |
| EVIDENTIAL REASONING FOR SHIP CLASSIFICATION: FUSION OF DEEP LEARNING CLASSIFIERS | 712 |
| <i>Benoit Debaque ; Mihai Cristian Florea ; Nicolas Duclos-Hindié ; Anne-Claire Boury-Brisset</i> | |
| SCALING DATA ASSOCIATION FOR HYPOTHESIS-ORIENTED MHT | 720 |
| <i>Michael Motro ; Joydeep Ghosh</i> | |
| DISTRIBUTED RESAMPLING GAUSSIAN PARTICLE FILTERING FOR HETEROGENEOUS NETWORKS | 728 |
| <i>Meiqiu Sun ; Wei Xia ; Qian Wang</i> | |
| PATTERN CLASSIFICATION IN HETEROGENEOUS DOMAINS BASED ON EVIDENCE THEORY (POSTER) | 734 |
| <i>Zhun-Ga Liu ; Guanghui Qiu ; Gregoire Mercier ; Quan Pan</i> | |
| A GAUSSIAN PROCESS REGRESSION APPROACH FOR POINT TARGET TRACKING | 740 |
| <i>Waqas Aftab ; Lyudmila Mihaylova</i> | |
| FRAMING SITUATION PREDICTION AS A SEQUENCE PREDICTION PROBLEM: A SITUATION EVOLUTION MODEL BASED ON CONTINUOUS-TIME MARKOV CHAINS | 748 |
| <i>Andrea Salfinger</i> | |
| FUSION OF LIDAR AND CAMERA IMAGES IN END-TO-END DEEP LEARNING FOR STEERING AN OFF-ROAD UNMANNED GROUND VEHICLE | 756 |
| <i>Narada Warakagoda ; Johann Dirdal ; Erlend Faxvaag</i> | |
| MULTI-BAND IMAGE FUSION USING GAUSSIAN PROCESS REGRESSION WITH SPARSE RATIONAL QUADRATIC KERNEL | 764 |
| <i>Fodio S. Longman ; Lyudmila Mihaylova ; Le Yang ; Konstantinos N. Topouzelis</i> | |
| SECURE METHOD FOR DE-IDENTIFYING AND ANONYMIZING LARGE PANEL DATASETS | 772 |
| <i>Mohanad Ajina ; Bahram Yousefi ; Jim Jones ; Kathryn Laskey</i> | |
| NON-RIGID IMAGE FEATURE MATCHING BY STRUCTURE CONSTRAINTS | 779 |
| <i>Hao Zhu ; Ke Zou ; Yongfu Li ; Henry Leung ; Zhen Tian</i> | |
| POSTERIOR CRAMÉR-RAO LOWER BOUNDS FOR EXTENDED TARGET TRACKING WITH GAUSSIAN PROCESS PMHT | 786 |
| <i>Xu Tang ; Mingyan Li ; Ratnasingham Tharmarasa ; Thia Kirubarajan</i> | |
| GIBBS SAMPLING OF MEASUREMENT PARTITIONS AND ASSOCIATIONS FOR EXTENDED MULTI-TARGET TRACKING | 794 |
| <i>Jens Honer ; Fabian Schmieder</i> | |
| SEQUENTIAL MONTE CARLO FILTERING WITH LONG SHORT-TERM MEMORY PREDICTION | 802 |
| <i>Steffen Jung ; Isabel Schlangen ; Alexander Charlish</i> | |
| OPTIMAL FUSION OF ELLIPTIC EXTENDED TARGET ESTIMATES BASED ON THE WASSERSTEIN DISTANCE | 809 |
| <i>Kolja Thormann ; Marcus Baum</i> | |
| A NEW NETWORK STRUCTURE FOR SEMANTIC SEGMENTATION OF SHIP TARGETS IN REMOTE SENSING | 815 |
| <i>Cai Mi ; Cui Yaqi ; Lv Yafei ; Zhang Jing ; Xiong Wei ; Pei Jiazheng</i> | |
| TRACKING OF SPLINE MODELED EXTENDED TARGETS USING A GAUSSIAN MIXTURE PHD FILTER | 823 |
| <i>Tim Baur ; Julian Böhler ; Stefan Wirtensohn ; Johannes Reuter</i> | |
| TRACKING TARGETS WITH KNOWN SPATIAL EXTENT USING EXPERIMENTAL MARINE RADAR DATA | 831 |
| <i>Jaya Shradha Fowdur ; Marcus Baum ; Frank Heymann</i> | |

| | |
|--|------|
| STUDENT'S T INFORMATION FILTER WITH ADAPTIVE DEGREE OF FREEDOM FOR MULTI-SENSOR FUSION | 839 |
| <i>Joelle Al Hage ; Philippe Xu ; Philippe Bonnifait</i> | |
| ON ITERATIVE UNSCENTED KALMAN FILTER USING OPTIMIZATION | 847 |
| <i>Martin A. Skoglund ; Fredrik Gustafsson ; Gustaf Hendeby</i> | |
| MAXIMUM LIKELIHOOD DETECTION IN FOCAL PLANE ARRAYS WITH GENERIC POINT SPREAD FUNCTION (POSTER) | 855 |
| <i>K. Kiani ; B. Balasingam ; B. Shahrava</i> | |
| TYPE II APPROXIMATE BAYES PERSPECTIVE TO MULTIPLE HYPOTHESIS TRACKING | 862 |
| <i>Murat Üney</i> | |
| HOW TO EVALUATE HIGH LEVEL FUSION ALGORITHMS? | 870 |
| <i>Claire Laudy ; Nicolas Museux</i> | |
| EXTRACTING HUMAN BREATHING RATE FROM THE FUSION OF MULTIPLE PIEZO-RESISTIVE MEMBRANES | 878 |
| <i>Bénédicte Chatelais ; Jean-François Gagnon</i> | |
| TERRAIN-AIDED NAVIGATION WITH AN ATOMIC GRAVIMETER | 885 |
| <i>C. Musso ; B. Sacleux ; A. Bresson ; Jm. Allard ; K. Dahia ; Y. Bidel ; N. Zahzam ; C. Palmier</i> | |
| ON MALICIOUS AGENTS IN NON-BAYESIAN SOCIAL LEARNING WITH UNCERTAIN MODELS | 893 |
| <i>James Zachary Hare ; César A. Uribe ; Lance M. Kaplan ; Ali Jadbabaie</i> | |
| ON DECENTRALIZED SELF-LOCALIZATION AND TRACKING UNDER MEASUREMENT ORIGIN UNCERTAINTY | 901 |
| <i>Pranay Sharma ; Augustin-Alexandru Saucan ; Donald J. Bucci ; Pramod K. Varshney</i> | |
| HYBRID FEATURE FUSION USING RNN AND PRE-TRAINED CNN FOR CLASSIFICATION OF ALZHEIMER'S DISEASE (POSTER) | 909 |
| <i>Emimal Jabason ; M. Omair Ahmad ; M. N. S. Swamy</i> | |
| FUSION OF SAR AND MULTISPECTRAL SATELLITE IMAGES USING MULTISCALE ANALYSIS AND DEMPSTER-SHAFER THEORY FOR FLOOD EXTENT EXTRACTION | 913 |
| <i>Moslem Ouled Sghaier ; Melita Hadzagic ; Jiri Patera</i> | |
| MULTI-SENSOR PASSIVE LOCALIZATION BASED ON SENSOR SELECTION | 921 |
| <i>Wen Ma ; Hongyan Zhu ; Yan Lin</i> | |
| OPTIMAL PARTICLE FILTER BASED ON BAYESIAN SOLUTION FOR MULTIPLE OUT-OF-SEQUENCE MEASUREMENTS | 929 |
| <i>Qi Yang ; Wei Yi</i> | |
| SOME RESULTS ON GENERALIZED ELLIPSOID INTERSECTION FUSION | 935 |
| <i>Hanning Tang ; Haiqi Liu ; Bing Liu ; Xiaojing Shen ; Pramod K. Varshney</i> | |
| ACTIVE RFID BASED INDOOR LOCALIZATION | 941 |
| <i>Jingyu Wang ; Ravindra Kumar Dhanapal ; Priyadharshini Ramakrishnan ; Balakumar Balasingam ; Thiago Souza ; Roman Maev</i> | |
| MULTI-RATE ASYNCHRONOUS DISTRIBUTED FILTERING UNDER RANDOMIZED GOSSIP STRATEGY | 948 |
| <i>Teng Shao ; Zhansheng Duan ; Uwe D. Hanebeck</i> | |
| A DISTRIBUTED PHD FILTER FOR ON-LINE JOINT SENSOR REGISTRATION AND MULTI-TARGET TRACKING | 956 |
| <i>Lei Chai ; Wei Yi ; Xinyue Jiang ; Lingjiang Kong</i> | |
| MULTI-SENSOR BOX PARTICLE FILTER WITH ITERATED MEASUREMENT CONTRACTION | 962 |
| <i>Nanqi Chen ; Hongbing Ji ; Yongchan Gao</i> | |
| PARTITIONED UPDATE BINOMIAL GAUSSIAN MIXTURE FILTER | 969 |
| <i>Matti Raitoharju ; Ángel F. García-Fernández ; Simo Särkkä</i> | |
| SOLUTION SEPARATION UNSCENTED KALMAN FILTER | 977 |
| <i>J. Dunik ; O. Straka ; E. Blasch</i> | |
| NIGHT VISION COLORIZATION FROM COLOR MAPPING TO COLOR TRANSFERRING | 985 |
| <i>Yufeng Zheng ; Erik P. Blasch</i> | |
| ESTIMATION OF TARGET DETECTABILITY FOR MARITIME TARGET TRACKING IN THE PDA FRAMEWORK | 992 |
| <i>Erik F. Wilthil ; Yaakov Bar-Shalom ; Peter Willett ; Edmund Brekke</i> | |
| BEYOND 2D: FUSION OF MONOCULAR 3D POSE, MOTION AND APPEARANCE FOR HUMAN ACTION RECOGNITION | 1000 |
| <i>Wei Lin ; Jie Yu</i> | |

| | |
|--|------|
| CP BASED OFDM RADAR RANGE RECONSTRUCTION UNDER THE BACKGROUND OF FRAGMENTED SPECTRUM (POSTER) | 1008 |
| <i>Xinyu Liu ; Tianxian Zhang ; Qiao Shi ; Lingjiang Kong</i> | |
| SIMULATING NULL GAMES FOR UNCERTAINTY EVALUATION IN GREEN SECURITY GAMES | 1014 |
| <i>L. Kirkland ; A. De Waal ; J. P. De Villiers</i> | |
| DISCRETE GRID BASED DETECTION STRATEGIES FOR DISTRIBUTED MIMO RADARS | 1022 |
| <i>Shixing Yang ; Huaiying Tan ; Wei Yi ; Lingjiang Kong</i> | |
| PARTICLE FILTER TRACK-BEFORE-DETECT ALGORITHM WITH DISCONTINUOUS SIGNALS IN PASSIVE SENSOR SYSTEMS | 1029 |
| <i>Lingzhi Fu ; Huaiying Tan ; Wei Yi ; Lingjiang Kong</i> | |
| A FRAMEWORK FOR USING RADAR MEASUREMENTS OF UNKNOWN TARGETS IN HIERARCHICAL CLASSIFICATION | 1035 |
| <i>Marja Ruotsalainen ; Henna Perälä ; Minna Väilä ; Juha Jylhä ; Mikko Kauhanen</i> | |
| OBJECT DETECTION IN TENSOR DECOMPOSITION BASED MULTI TARGET TRACKING | 1043 |
| <i>Felix Govaers</i> | |
| UNSUPERVISED FACT-FINDING WITH MULTI-MODAL DATA IN SOCIAL SENSING | 1051 |
| <i>Huajie Shao ; Shuochao Yao ; Yiran Zhao ; Lu Su ; Zhibo Wang ; Dongxin Liu ; Shengzhong Liu ; Lance Kaplan ; Tarek Abdelzaher</i> | |
| DISTRIBUTED LEARNING OVER TIME-VARYING GRAPHS WITH ADVERSARIAL AGENTS | 1059 |
| <i>Pooja Vyavahare ; Lili Su ; Nitin H. Vaidya</i> | |
| CONTEXT-ENHANCED VEHICLE TRACKING METHOD UNDER THE CONNECTED ENVIRONMENT (POSTER) | 1067 |
| <i>Zhen Tian ; Yinguo Li ; Ming Cen ; Hao Zhu ; Thia Kirubarajan</i> | |
| ON DECOMBINATION OF BELIEF FUNCTION | 1073 |
| <i>Deqiang Han ; Yi Yang ; Jean Dezert</i> | |
| STATE EVALUATION OF GIS EQUIPMENT BASED ON MULTI-SENSOR INFORMATION FUSION (POSTER) | 1079 |
| <i>Xinlei Qiao ; Kai Gao ; Hua Huang ; Poyan Lu ; Li Ma ; Lijun Jin</i> | |
| MARKOV AND CONDITIONALLY MARKOV PROCESSES: FROM GAUSSIAN TO ELLIPTICAL | 1085 |
| <i>Mengjiao Tang ; Yao Rong ; X. Rong Li</i> | |
| HOW TO CALIBRATE YOUR ENEMY'S CAPABILITIES? INVERSE FILTERING FOR COUNTER-AUTONOMOUS SYSTEMS | 1093 |
| <i>Vikram Krishnamurthy ; Muralidhar Rangaswamy</i> | |
| TRACK-BEFORE-DETECT ON RADAR IMAGE OBSERVATION WITH AN ADAPTIVE AUXILIARY PARTICLE FILTER | 1099 |
| <i>Audrey Cuillery ; François Le Gland</i> | |
| FUSION OF DEEP NEURAL NETWORKS FOR ACTIVITY RECOGNITION: A REGULAR VINE COPULA BASED APPROACH | 1107 |
| <i>Shan Zhang ; Baocheng Geng ; Pramod K. Varshney ; Muralidhar Rangaswamy</i> | |
| BELIEF MOSAICS OF SUBJECTIVE OPINIONS | 1114 |
| <i>Audun Jøsang</i> | |
| EXTENDED TARGET TRACKING AND CLASSIFICATION USING NEURAL NETWORKS | 1122 |
| <i>Barkin Tuncer ; Murat Kumru ; Emre Özkan</i> | |
| END-TO-END MULTI-MODAL BEHAVIORAL CONTEXT RECOGNITION IN A REAL-LIFE SETTING | 1129 |
| <i>Aaqib Saeed ; Tanir Ozcelebi ; Stojan Trajanovski ; Johan J. Lukkien</i> | |
| QUICKEST DETECTION OF ABNORMAL VEHICLE MOVEMENTS ON HIGHWAYS | 1137 |
| <i>Jingyu Wang ; Ravindra Kumar Dhanapal ; Priyadharshini Ramakrishnan ; Balakumar Balasingam</i> | |
| ONLINE SYSTEM EVALUATION AND LEARNING OF DATA SOURCE MODELS: A PROBABILISTIC GENERATIVE APPROACH | 1145 |
| <i>Gregor Pavlin ; Anne-Laure Jousset ; Johan P. De Villiers ; Paulo C. Costa ; Kathryn Laskey ; Franck Mignet ; Alta De Waal</i> | |
| PROBABILISTIC ANALYSIS OF UAV ROUTING WITH DYNAMICALLY ARRIVING TARGETS | 1155 |
| <i>Hossein N. Z. Matin ; Ali Yekkehkhany ; Rakesh Nagi</i> | |
| AN ALTERNATIVE DERIVATION OF GENERALIZED LIKELIHOOD TESTS FOR TRACK-TO-TRACK CORRELATION | 1163 |
| <i>Terrence L. Ogle ; Peter Willett</i> | |

| | |
|--|------|
| LARGE-SCALE MULTI-DIMENSIONAL ASSIGNMENT: PROBLEM FORMULATIONS AND GPU ACCELERATED SOLUTIONS | 1170 |
| <i>Olivia Reynen ; Samhita Vadrevu ; Rakesh Nagi ; Keith Legrand</i> | |
| A MAXIMUM LIKELIHOOD APPROACH TO JOINT GROUPWISE IMAGE REGISTRATION AND FUSION BY A STUDENT-T MIXTURE MODEL | 1178 |
| <i>Hao Zhu ; Chunxia Tang ; Allan De Freitas ; Lyudmila Mihaylova</i> | |
| AUTONOMOUS HEART RATE TRACKING METHODOLOGY USING KALMAN FILTER AND THE EM ALGORITHM | 1185 |
| <i>Thiago T. Souza ; Balakumar Balasingam ; Roman Maev</i> | |
| FOURIER SUBSPACE PRESERVING PARTICLE FILTER (POSTER) | 1193 |
| <i>Christopher Thron ; Khoi Tran</i> | |
| IMPROVED COVARIANCE MATRIX ESTIMATORS BY MULTI-PENALTY REGULARIZATION | 1199 |
| <i>Bin Zhang ; Jie Zhou ; Jianbo Li</i> | |
| NORMAL-GAMMA IMM FILTER FOR LINEAR SYSTEMS WITH NON-GAUSSIAN MEASUREMENT NOISE | 1206 |
| <i>Le Zhang ; Jian Lan ; X. Rong Li</i> | |
| ADAPTIVE APPROXIMATE BAYESIAN COMPUTATIONAL PARTICLE FILTERS FOR UNDERWATER TERRAIN AIDED NAVIGATION | 1214 |
| <i>Camille Palmier ; Karim Dahia ; Nicolas Merlinge ; Pierre Del Moral ; Dann Laneuville ; Christian Musso</i> | |
| NONLINEAR STATE ESTIMATION USING SKEW-SYMMETRIC REPRESENTATION OF DISTRIBUTIONS | 1222 |
| <i>Haozhan Meng ; X. Rong Li ; Vesselin P. Jilkov</i> | |
| SUPPORTING USER FUSION OF AI SERVICES THROUGH CONVERSATIONAL EXPLANATIONS | 1230 |
| <i>Dave Braines ; Richard Tomsett ; Alun Preece</i> | |
| CONSISTENT DISTRIBUTED TRACK FUSION UNDER COMMUNICATION CONSTRAINTS | 1238 |
| <i>Robin Forsling ; Zoran Sjanic ; Fredrik Gustafsson ; Gustaf Hendeby</i> | |
| JOINT AXIS ESTIMATION FOR FAST AND SLOW MOVEMENTS USING WEIGHTED GYROSCOPE AND ACCELERATION CONSTRAINTS | 1246 |
| <i>Fredrik Olsson ; Thomas Seel ; Dustin Lehmann ; Kjartan Halvorsen</i> | |
| SOME INEQUALITIES BETWEEN PAIRS OF MARGINAL AND JOINT BAYESIAN LOWER BOUNDS | 1254 |
| <i>Lucien Bacharach ; Eric Chaumette ; Carsten Fritsche ; Umut Orguner</i> | |
| HUMAN ACTION RECOGNITION BASED ON MULTI-MODE SPATIAL-TEMPORAL FEATURE FUSION | 1262 |
| <i>Dongli Wang ; Jun Yang ; Yan Zhou</i> | |
| SENSOR COMBINATIONS IN HETEROGENEOUS MULTI-SENSOR FUSION FOR MARITIME TARGET TRACKING | 1269 |
| <i>Øystein Kaarstad Helgesen ; Edmund Førland Brekke ; Håkon Hagen Helgesen ; Øystein Engelhardtzen</i> | |
| TRACK-BEFORE-DETECT STRATEGY FOR RADAR DETECTION IN RAYLEIGH-DISTRIBUTED NOISE | 1278 |
| <i>Liangliang Wang ; Gongjian Zhou ; Jiazhou He ; Thiagalingam Kirubarajan</i> | |
| IMPROVING MAJORITY-GUIDED FUZZY INFORMATION FUSION FOR INDUSTRY 4.0 CONDITION MONITORING | 1285 |
| <i>Christoph-Alexander Holst ; Volker Lohweg</i> | |
| DIVERS TRACKING WITH IMPROVED GAUSSIAN MIXTURE PROBABILITY HYPOTHESIS DENSITY FILTER | 1293 |
| <i>Ben Liu ; Ratnasingham Tharmarasa ; Simon Hallé ; Rahim Jassemi ; Mihai Florea ; Thia Kirubarajan</i> | |
| A LATENT VARIABLE MODEL STATE ESTIMATION SYSTEM FOR IMAGE SEQUENCES | 1299 |
| <i>Nils Kornfeld ; Zachary Feng</i> | |
| A MACHINE LEARNING TASK SELECTION METHOD FOR RADAR RESOURCE MANAGEMENT (POSTER) | 1307 |
| <i>Zhen Qu ; Zhen Ding ; Peter Moo</i> | |
| OPTIMAL BALANCING OF MULTI-FUNCTION RADAR BUDGET FOR MULTI-TARGET TRACKING USING LAGRANGIAN RELAXATION | 1313 |
| <i>Max Ian Schöpe ; Hans Driessen ; Alexander Yarovoy</i> | |
| PARSIMONIOUS VEHICLE LOCALIZATION ARCHITECTURE USING A GENERIC TOP-DOWN FUSION PROCESS | 1321 |
| <i>Maroua Ladhari ; Roland Chapuis ; Romuald Aufrère ; Christophe Debain ; Laurent Malaterre</i> | |
| MIXED OPEN-AND-CLOSED LOOP SATELLITE TASK PLANNING | 1329 |
| <i>Ratnasingham Tharmarasa ; Thia Kirubarajan ; Jean Berger ; Mihai Cristian Florea</i> | |

| | |
|---|------|
| SENSOR DATA PREDICTION TECHNIQUES FOR NODES IN IOT (POSTER) | 1337 |
| <i>Luis Filipe Kopp ; Gabriel Martins ; Claudio M. De Farias ; Priscila M. V. Lima ; Luiz F. R. C. Carmo</i> | |
| DECENTRALIZED MULTI-TARGET TRACKING IN URBAN ENVIRONMENTS: OVERVIEW AND CHALLENGES | 1343 |
| <i>Donald J. Bucci ; Pramod K. Varshney</i> | |
| USING TRUSTED NETWORKS TO DETECT ANOMALY NODES IN INTERNET OF THINGS | 1351 |
| <i>Beatriz De A. Campos ; Claudio M. De Farias ; Luiz F. R. C. Carmo</i> | |
| DUAL STREAM SPATIO-TEMPORAL MOTION FUSION WITH SELF-ATTENTION FOR ACTION RECOGNITION | 1359 |
| <i>Md Asif Jalal ; Waqas Aftab ; Roger K Moore ; Lyudmila Mihaylova</i> | |
| ONLINE VIDEO ANOMALY DETECTION METHODOLOGY WITH HIGHLY DESCRIPTIVE FEATURE SETS | 1366 |
| <i>Abbas Mahbod ; Henry Leung</i> | |
| RELEVANCE AND IMPORTANCE IN DEEP LEARNING FOR OPEN SOURCE DATA PROCESSING TO ENHANCE CONTEXT | 1373 |
| <i>Moslem Ouled Sghaier ; Melita Hadzagic ; Julian Falardeau ; Nathan Kashyap</i> | |
| AN END-TO-END DEEP NEURAL NETWORK FOR FACIAL EMOTION CLASSIFICATION | 1381 |
| <i>Md Asif Jalal ; Lyudmila Mihaylova ; Roger K Moore</i> | |
| PEDESTRIAN TRACKING BY PROBABILISTIC DATA ASSOCIATION AND CORRESPONDENCE EMBEDDINGS | 1388 |
| <i>Borna Bicanic ; Marin Oršic ; Ivan Markovic ; Siniša Šegvic ; Ivan Petrovic</i> | |
| CLOSED-LOOP MULTI-SATELLITE SCHEDULING BASED ON HIERARCHICAL MDP | 1394 |
| <i>Ratnasingham Tharmarasa ; Abhijit Chatterjee ; Yinghui Wang ; Thia Kirubarajan ; Jean Berger ; Mihai Cristian Florea</i> | |
| EVALUATION OF LABELING UNCERTAINTY IN MULTIPLE TARGET TRACKING WITH TRACK-BEFORE-DETECT RADARS | 1401 |
| <i>Carlos Moreno Leon ; Hans Driessen</i> | |
| COGNITIVE RADAR TRACKING PERFORMANCE ENHANCEMENT VIA WAVEFORM OPTIMIZATION | 1409 |
| <i>Abdessattar Hayouni ; Henry Leung ; Zhen Ding</i> | |
| ENGINEERING FOR EMERGENCE IN INFORMATION FUSION SYSTEMS: A REVIEW OF SOME CHALLENGES | 1417 |
| <i>Ali K. Raz ; James Llinas ; Ranjeev Mittu ; William Lawless</i> | |
| MULTISENSOR JIFI TRACKING OF EXTENDED OBJECTS | 1425 |
| <i>R. Blair Angle ; Roy L. Streit</i> | |
| USER-SPECIFIED OPTIMIZATION BASED TRANSFORMATION OF FUZZY MEMBERSHIP INTO BASIC BELIEF ASSIGNMENT | 1433 |
| <i>Xiaojing Fan ; Deqiang Han ; Jean Dezert ; Yi Yang</i> | |
| COOPERATIVE SEMI-SUPERVISED REGRESSION ALGORITHM BASED ON BELIEF FUNCTIONS THEORY | 1441 |
| <i>Hongshun He ; Deqiang Han ; Yi Yang</i> | |
| FUSION WITHIN A DETECTION SYSTEM FAMILY | 1447 |
| <i>Mark E. Oxley ; Christine M. Schubert Kabban</i> | |
| SITUATIONAL AWARENESS WITH UBIQUITOUS SENSING: THE CASE OF ROBUST DETECTION AND CLASSIFICATION OF TARGETS IN CLOSE PROXIMITY | 1455 |
| <i>Varun K. Garg ; Brooks P. Saunders ; Thanuka L. Wickramaratne</i> | |
| TARGET LOCALIZATION USING MOBILE SENSORS AND A DECENTRALIZED AND DISTRIBUTED VARIATIONAL ESTIMATOR | 1463 |
| <i>Amit K. Sanyal ; Hossein Eslamiat</i> | |
| DECENTRALIZED AND DISTRIBUTED ACTIVE FAULT DIAGNOSIS FOR STOCHASTIC SYSTEMS WITH INDIRECT OBSERVATIONS | 1470 |
| <i>Ondrej Straka ; Ivo Puncochár</i> | |
| EM-BASED EXTENDED TARGET TRACKING WITH AUTOMOTIVE RADAR USING LEARNED SPATIAL DISTRIBUTION MODELS | 1478 |
| <i>Hauke Kaulbersch ; Jens Honer ; Marcus Baum</i> | |
| COMPLEX SIGNAL DENOISING AND INTERFERENCE MITIGATION FOR AUTOMOTIVE RADAR USING CONVOLUTIONAL NEURAL NETWORKS | 1486 |
| <i>Johanna Rock ; Mate Toth ; Elmar Messner ; Paul Meissner ; Franz Pernkopf</i> | |
| NON-EUCLIDEAN KALMAN FILTERS FOR NONLINEAR MEASUREMENTS | 1494 |
| <i>Samuel Shapero ; P. A. Miceli</i> | |

| | |
|--|------|
| TRACK INITIATION IN THE PRESENCE OF MULTIPATH EFFECT AND REFLECTING POINT UNCERTAINTIES | 1502 |
| <i>Leilei Guo ; Jian Lan ; X. Rong Li</i> | |
| EXTENDED TARGET POISSON MULTI-BERNOULLI MIXTURE TRACKERS BASED ON SETS OF TRAJECTORIES | 1510 |
| <i>Yuxuan Xia ; Karl Granström ; Lennart Svensson ; Ángel F. García-Fernández ; Jason L. Williams</i> | |
| A MULTI-SENSOR SIMULATION ENVIRONMENT FOR AUTONOMOUS CARS | 1518 |
| <i>Rui Song ; Paul Horridge ; Simon Pemberton ; Jon Wetherall ; Simon Maskell ; Jason Ralph</i> | |
| RISK-AVERSION ADJUSTED PORTFOLIO OPTIMIZATION WITH PREDICTIVE MODELING | 1525 |
| <i>Ran Ji ; Kc Chang ; Zhenlong Jiang</i> | |
| ANOMALY DETECTION WITH PATTERN OF LIFE EXTRACTION FOR GMTI TRACKING | 1533 |
| <i>Tsa Chun Liu ; Ratnasingham Tharmarasa ; Simon Halle ; Mihai Florea ; Mike McDonald ; Thia Kirubarajan</i> | |
| TARGET LOCALIZATION AND SENSOR SYNCHRONIZATION IN THE PRESENCE OF DATA ASSOCIATION UNCERTAINTY | 1541 |
| <i>Tongyu Ge ; Ratnasingham Tharmarasa ; Bernard Lebel ; Mihai Florea ; Thiagalingam Kirubarajan</i> | |
| AUTOMATIC FUSION OF SATELLITE IMAGERY AND AIS DATA FOR VESSEL DETECTION | 1547 |
| <i>Aristides Miliotis ; Konstantina Bereta ; Konstantinos Chatzikokolakis ; Dimitris Zissis ; Stan Matwin</i> | |
| EFFICIENT POLLING ALGORITHMS USING FRIENDSHIP PARADOX AND BLACKWELL DOMINANCE | 1554 |
| <i>Stujay Bhatt ; Buddhika Nettasinghe ; Vikram Krishnamurthy</i> | |
| NONPARAMETRIC BAYESIAN METHODS AND THE DEPENDENT PITMAN-YOR PROCESS FOR MODELING EVOLUTION IN MULTIPLE OBJECT TRACKING | 1562 |
| <i>Bahman Moraffah ; Antonia Papandreou-Suppappola ; Muralidhar Rangaswamy</i> | |
| INTEGRATED LOCAL LINEARIZATION PARTICLE FILTER FOR MULTIPLE MANEUVERING TARGET TRACKING IN CLUTTER | 1568 |
| <i>Seung Hyo Park ; Taek Lyul Song ; Sa Yong Chong</i> | |
| ADAPTIVE BM3D ALGORITHM FOR IMAGE DENOISING USING COEFFICIENT OF VARIATION | 1575 |
| <i>Bing Song ; Zhansheng Duan ; Yongxin Gao ; Teng Shao</i> | |
| ITERATIVE PATH RECONSTRUCTION FOR LARGE-SCALE INERTIAL NAVIGATION ON SMARTPHONES | 1583 |
| <i>Santiago Cortés Reina ; Yuxin Hou ; Juho Kannala ; Arno Solin</i> | |
| FEATURE-AIDED MULTITARGET TRACKING FOR OPTICAL BELT SORTERS | 1591 |
| <i>Tobias Kronauer ; Florian Pfaff ; Benjamin Noack ; Wei Tiant ; Georg Maier ; Uwe D. Hanebeck</i> | |
| 2.5D EVIDENTIAL GRIDS FOR DYNAMIC OBJECT DETECTION | 1599 |
| <i>Hind Laghmar ; Thomas Laurain ; Christophe Cudel ; Jean-Philippe Lauffenburger</i> | |
| ENHANCED DETECTION RELIABILITY FOR HUMAN TRACKING BASED VIDEO ANALYTICS | 1606 |
| <i>Zeyu Fu ; Xin Lai ; Syed Mohsen Naqvi</i> | |
| UNCERTAIN VISUAL TARGET TRACKING BY HIERARCHICAL COMBINATION OF MULTIPLE TARGET STATE SPACE MODEL AND SELF ORGANIZING MAP | 1613 |
| <i>Norikazu Ikoma</i> | |
| TRACK BASED UAV CLASSIFICATION USING SURVEILLANCE RADARS | 1620 |
| <i>Tevfik Bahadır Sarikaya ; Duygu Yumus ; Murat Efe ; Gökhan Soysal ; Thiagalingam Kirubarajan</i> | |
| ROTA: ROUND TRIP TIMES OF ARRIVAL FOR LOCALIZATION WITH UNSYNCHRONIZED RECEIVERS | 1626 |
| <i>Daniel Frisch ; Uwe D. Hanebeck</i> | |
| AN INFORMATION THEORETIC APPROACH FOR ASSESSING THE PERFORMANCE OF VEHICLE KINEMATIC TRACKING | 1634 |
| <i>Daniel Clarke ; Dennis Bruggner</i> | |
| ADAPTIVE DIFFUSION FOR DISTRIBUTED OPTIMIZATION OVER MULTI-AGENT NETWORK WITH RANDOM DELAYS (POSTER) | 1641 |
| <i>Yi Qiu ; Jie Zhou</i> | |
| HETEROGENEOUS TRACK-TO-TRACK FUSION IN 2D USING SONAR AND RADAR SENSORS | 1647 |
| <i>Mahendra Mallick ; Kuo-Chu Chang ; Sanjeev Arulampalam ; Yanjun Yan ; Barbara La Scala</i> | |
| FROM SOCIAL NETWORK GRAPHS TO CAUSAL BAYES NETS | 1655 |
| <i>Kenneth J. Hintz ; Andrew S. Hintz</i> | |
| MEASUREMENT OF LEVEL 5 FUSION WITH WORKLOAD CONSENSUS | 1662 |
| <i>Steven Horn ; Patricia Moorhead</i> | |

| | |
|--|-------------|
| OPTIMIZING MARITIME VESSEL SERVICE TIME WITH ADAPTIVE QUAY CRANE DEPLOYMENT THROUGH LEVEL 4 HARD- SOFT INFORMATION FUSION | 1670 |
| <i>Ashwin Panchapakesan ; Rami Abielmona ; Emil Petriu</i> | |
| SIMULATED EVALUATION OF UBIQUITOUS SENSED SITUATIONAL AWARENESS SYSTEMS..... | 1678 |
| <i>Brooks P. Saunders ; Varun K. Garg ; Thanuka L. Wickramarathne</i> | |
| DISTRIBUTIONAL MEMORY EXPLAINABLE WORD EMBEDDINGS IN CONTINUOUS SPACE | 1685 |
| <i>Lauro Snidaro ; Giovanni Ferrin ; Gian Luca Foresti</i> | |
| MEASURES OF NONLINEARITY AND NON-GAUSSIANITY IN ORBITAL UNCERTAINTY PROPAGATION | 1692 |
| <i>Jindrich Havlik ; Ondrej Straka</i> | |
| TRACKING THE PROGRESSION OF READING THROUGH EYE-GAZE MEASUREMENTS | 1700 |
| <i>Stephen Bottos ; Balakumar Balasingam</i> | |
| ON GNSS JAMMING THREAT FROM THE MARITIME NAVIGATION PERSPECTIVE | 1708 |
| <i>Daniel Medina ; Christoph Lass ; Emilio Pérez Marcos ; Ralf Ziebold ; Pau Closas ; Jesús García</i> | |
| PROBABILISTIC 3D POINT CLOUD FUSION ON GRAPHICS PROCESSORS FOR AUTOMOTIVE (POSTER)..... | 1715 |
| <i>Nicolai Behmann ; Yihan Cheng ; Jens Schleusner ; Holger Blume</i> | |
| ASSESSMENT OF HIERARCHICAL MULTI-SENSOR MULTI-TARGET TRACK FUSION IN THE PRESENCE OF LARGE SENSOR BIASES | 1721 |
| <i>Terrence L. Ogle ; W. Dale Blair ; Benjamin J. Slocumb ; Darin T. Dunham</i> | |
| JUMP MARKOV NONLINEAR SYSTEM IDENTIFICATION FOR BEHAVIOR CLASSIFICATION IN MULTI-SENSOR TARGET TRACKING | 1728 |
| <i>Eduardo Richa ; Martin Podt ; Rienk Bakker ; Hans Driessen</i> | |
| GAUSSIAN MIXTURE FITTING FILTER FOR NON-GAUSSIAN MEASUREMENT ENVIRONMENT..... | 1736 |
| <i>Haoran Cui ; Xiaoxu Wang ; Yan Liang ; Quan Pan</i> | |
| USE OF HIERARCHICAL DIRICHLET PROCESSES TO INTEGRATE DEPENDENT OBSERVATIONS FROM MULTIPLE DISPARATE SENSORS FOR TRACKING | 1743 |
| <i>Bahman Moraffah ; Cesar Brito ; Bindya Venkatesh ; Antonia Papandreou-Suppappola</i> | |
| INFORMATION FUSION AND IMAGE PROCESSING BASED ARC DETECTION AND LOCALIZATION IN PANTOGRAPH-CATENARY SYSTEMS | 1750 |
| <i>Poyan Lu ; Changfan Huo ; Wangwang Duan ; Jianyong Ai ; Haifeng Jin ; Lijun Jin</i> | |
| ROBUST FACE AUTHENTICATION BASED ON DYNAMIC QUALITY-WEIGHTED COMPARISON OF VISIBLE AND THERMAL-TO-VISIBLE IMAGES TO VISIBLE ENROLLMENTS | 1758 |
| <i>Khawla Mallat ; Naser Damer ; Fadi Boutros ; Jean-Luc Dugelay</i> | |
| AIS TRAJECTORY CLASSIFICATION BASED ON IMM DATA | 1766 |
| <i>Daniel Amigo Herrero ; David Sánchez Pedroche ; Jesús García Herrero ; José Manuel Molina López</i> | |
| A MULTI-DETECTOR SOLUTION TOWARDS AN ACCURATE AND GENERALIZED DETECTION OF FACE MORPHING ATTACKS | 1774 |
| <i>Naser Damer ; Steffen Zienert ; Yaza Wainakh ; Alexandra Moseguí Saladié ; Florian Kirchbuchner ; Arjan Kuijper</i> | |
| EXPLORING THE CHANNELS OF MULTIPLE COLOR SPACES FOR AGE AND GENDER ESTIMATION FROM FACE IMAGES..... | 1782 |
| <i>Fadi Boutros ; Naser Damer ; Philipp Terhörst ; Florian Kirchbuchner ; Arjan Kuijper</i> | |
| ACHIEVING CONSENSUS UNDER BOUNDED CONFIDENCE IN MULTI-AGENT DISTRIBUTED DECISION-MAKING | 1790 |
| <i>Ranga Dabarera ; Thanuka L. Wickramarathne ; Kamal Premaratne ; Manohar N. Murthi</i> | |
| DISTRIBUTED ESTIMATION USING SQUARE ROOT DECOMPOSITIONS OF DEPENDENT INFORMATION..... | 1798 |
| <i>Susanne Radtke ; Benjamin Noack ; Uwe D. Hanebeck</i> | |
| NONLINEAR DECENTRALIZED DATA FUSION WITH GENERALIZED INVERSE COVARIANCE INTERSECTION..... | 1806 |
| <i>Benjamin Noack ; Umut Orguner ; Uwe D. Hanebeck</i> | |
| HOUSES BOMBING IN RAVIXE: A BENCH FOR HIGH LEVEL FUSION EVALUATION | 1813 |
| <i>Nicolas Museux ; Claire Laudy ; Mihai Cristian Florea</i> | |
| DETECTION OF AIS SPOOFING IN FISHERY SCENARIOS | 1820 |
| <i>Max Krüger</i> | |

| | |
|---|------|
| INFORMATION MATRIX FUSION FOR NONLINEAR, ASYNCHRONOUS AND HETEROGENEOUS SYSTEMS | 1827 |
| <i>Kaipei Yang ; Yaakov Bar-Shalom ; Kuo-Chu Chang</i> | |
| TRACK-TO-TRACK FUSION WITH CROSS-COVARIANCES FROM RADAR AND IR/EO SENSOR | 1833 |
| <i>Kaipei Yang ; Yaakov Bar-Shalom ; Peter Willett</i> | |
| HYPERSPHERICAL DETERMINISTIC SAMPLING BASED ON RIEMANNIAN GEOMETRY FOR IMPROVED NONLINEAR BINGHAM FILTERING | 1838 |
| <i>Kailai Li ; Florian Pfaff ; Uwe D. Hanebeck</i> | |
| REFINED POSE ESTIMATION FOR SQUARE MARKERS USING SHAPE FITTING | 1846 |
| <i>Antonio Zea ; Uwe D. Hanebeck</i> | |
| GLOBAL OPTIMIZATION FOR RESOURCE ALLOCATION IN A NETWORKED-SURVEILLANCE RADAR | 1854 |
| <i>Allan De Freitas ; Richard W. Focke ; Conrad Beyers ; Pieter De Villiers</i> | |
| COURSA VENUE: INDOOR NAVIGATION PLATFORM USING FUSION OF INERTIAL SENSORS WITH MAGNETIC AND RADIO FINGERPRINTING | 1862 |
| <i>Gennadii Berkovich ; Dmitry Churikov ; Jacques Georgy ; Chris Goodall</i> | |
| INERTIAL MOTION CAPTURE USING ADAPTIVE SENSOR FUSION AND JOINT ANGLE DRIFT CORRECTION | 1868 |
| <i>Hammad Tanveer Butt ; Manthan Pancholi ; Mathias Musahl ; Pramod Murthy ; Maria Alejandra Sanchez ; Didier Stricker</i> | |
| STEREO VISUAL SLAM BASED ON UNSCENTED DUAL QUATERNION FILTERING | 1876 |
| <i>Simon Bultmann ; Kailai Li ; Uwe D. Hanebeck</i> | |
| TWO STREAM CONVOLUTIONAL NEURAL NETWORK FOR FULL FIELD OPTICAL COHERENCE TOMOGRAPHY FINGERPRINT RECOGNITION | 1884 |
| <i>Kiran B. Raja ; R. Raghavendra ; Egidijus Aukorius ; Claude Boccara ; Christoph Busch ; Norwegian Biometrics</i> | |
| MACHINE LEARNING-ENABLED ADAPTATION OF INFORMATION FUSION SOFTWARE SYSTEMS | 1888 |
| <i>Gerald Fry ; Tameem Samawi ; Kenny Lu ; Avi Pfeffer ; Curt Wu ; Steve Marotta ; Mike Reposo ; Stephen Chong</i> | |
| EFFICIENT NONLINEAR FILTERING OF MULTISCALE SYSTEMS WITH SPECIFIC STRUCTURE | 1895 |
| <i>Ryne Beeson ; N. Sri Namachchivaya</i> | |
| A DOMAIN MODEL FOR PERSONALIZED MONITORING SYSTEM BASED ON CONTEXT-AWARE DATA FUSION | 1903 |
| <i>Cristóvão Iglesias ; Claudio Miceli ; David Silva</i> | |
| FOURIER FILTERS, GRID FILTERS, AND THE FOURIER-INTERPRETED GRID FILTER | 1911 |
| <i>Florian Pfaff ; Kailai Li ; Uwe D. Hanebeck</i> | |
| QUALITY MEASURE AND OPTIMIZATION FOR GRID FLOW APPROACHES | 1919 |
| <i>Carolyn Kalender</i> | |
| FUSING ECONOMIC INDICATORS FOR PORTFOLIO OPTIMIZATION - A SIMULATION-BASED APPROACH | 1927 |
| <i>Jiayang Yu ; Tuan Le ; Kc Chang ; Sabyasachi Guharay</i> | |
| SCALABLE EVENT-TRIGGERED DATA FUSION FOR AUTONOMOUS COOPERATIVE SWARM LOCALIZATION | 1935 |
| <i>Ian Loefgren ; Nisar Ahmed ; Eric Frew ; Christoffer Heckman ; Sean Humbert</i> | |
| VISIBLE AND INFRARED IMAGE FUSION FRAMEWORK BASED ON RETINANET FOR MARINE ENVIRONMENT | 1943 |
| <i>Fahimeh Farahnakian ; Jussi Poikonen ; Markus Laurinen ; Dimitrios Makris ; Jukka Heikkonen</i> | |
| COLLABORATIVE SEMANTIC DATA FUSION WITH DYNAMICALLY OBSERVABLE DECISION PROCESSES | 1950 |
| <i>Luke Burks ; Nisar Ahmed</i> | |
| REAL-TIME SHIP TRACK ASSOCIATION: A BENCHMARK AND A NETWORK-BASED METHOD | 1958 |
| <i>Lin Wu ; Yongjun Xu ; Fei Wang ; Qiang Lu ; Miao Hu</i> | |
| HYPERBOLIC VEHICLE LOCALIZATION USING A SINGLE SIGNAL OF OPPORTUNITY AND TRAJECTORY CONSTRAINTS | 1966 |
| <i>Benjamin Siebler ; Martin Schmidhammer ; Stephan Sand</i> | |
| UNCERTAINTY-BASED DECISION MAKING USING DEEP REINFORCEMENT LEARNING | 1973 |
| <i>Xujiang Zhao ; Shu Hu ; Jin-Hee Cho ; Feng Chen</i> | |
| ASSESSING SITUATION AWARENESS ON FUSION-DRIVEN EMERGENCY MANAGEMENT SYSTEMS | 1981 |
| <i>Leonardo C. Botega ; Gustavo M. C. Pereira ; Valdir A. P. Junior ; Allan C. M. De Oliveira</i> | |

| | |
|---|------|
| INCORPORATING AIRCRAFT KINEMATICS AND RADAR CROSS SECTION INTO THE PERFORMANCE PREDICTION OF AIR SURVEILLANCE | 1989 |
| <i>Juha Jylhä ; Marja Ruotsalainen ; Minna Väilä ; Henna Perälä</i> | |
| COMPARISON OF LINEAR FILTERS IN THE PRESENCE OF BIASED MEASUREMENTS | 1997 |
| <i>P. A. Miceli ; W. Dale Blair</i> | |
| MULTIPLE HYPOTHESIS TRACKING FOR PROCESSING TRACKLETS | 2007 |
| <i>Chee-Yee Chong ; Shozo Mori</i> | |
| DYNAMIC TARGET DRIVEN TRAJECTORY PLANNING USING RRT | 2015 |
| <i>Simon Williams ; Xuezhi Wang ; Daniel Angley ; Christopher Gilliam ; Bill Moran ; Richard Ellem ; Trevor Jackson ; Amanda Bessell</i> | |
| GOSSIP-BASED DISTRIBUTED FILTERING OVER NETWORKS USING PROJECTION | 2023 |
| <i>Chao Wan ; Yongxin Gao ; X. Rong Li</i> | |
| HIGH-ACCURACY PARALLEL TWO-STAGE ESTIMATOR FOR GENERALIZED BIAS OF MICRO SENSOR WITH UNKNOWN INPUT | 2031 |
| <i>Jie Zhou ; Song Gao ; Qiang Shen ; Yu Li ; Chaobo Chen</i> | |
| MULTI-AGENT SYSTEM FOR THREAT ASSESSMENT AND ACTION SELECTION UNDER UNCERTAINTY AND AMBIGUITY | 2036 |
| <i>Galina L. Rogova ; Roman Ilin</i> | |
| RESILIENT COLLABORATIVE INTELLIGENCE FOR ADVERSARIAL IOT ENVIRONMENTS | 2044 |
| <i>Dulanga Weerakoon ; Kasthuri Jayarajah ; Randy Tandriansyah ; Archan Misra</i> | |
| DOMAIN SPECIFIC FUSION OF UNSTRUCTURED TEXT FOR SITUATION UNDERSTANDING (POSTER) | 2052 |
| <i>Éric-Olivier Bossé ; Julian Falardeau ; Isabelle Prévost ; Elisa Shahbazian ; Olivier Labonté</i> | |
| ITERATIVE NONLINEAR KALMAN FILTERING VIA VARIATIONAL EVIDENCE LOWER BOUND MAXIMIZATION | 2058 |
| <i>Yumei Hu ; Quan Pan ; Zhen Guo ; Zhiyuan Shi ; Zhentao Hu</i> | |
| POOLING TWEETS BY FINE-GRAINED EMOTIONS TO UNCOVER TOPIC TRENDS IN SOCIAL MEDIA | 2064 |
| <i>Annika Schoene ; Geeth De Mel</i> | |
| MULTIPLE MODEL BLE-BASED TRACKING VIA VALIDATION OF RSSI FLUCTUATIONS UNDER DIFFERENT CONDITIONS | 2071 |
| <i>Mohammadamin Atashi ; Mohammad Salimibeni ; Parvin Malekzadeh ; Mihai Barbulescu ; Konstantinos N. Plataniotis ; Arash Mohammadi</i> | |
| FLEXIBLE EXPECTED SHORTFALL ESTIMATION USING PARAMETRIC & NON-PARAMETRIC METHODS WITH APPLICATIONS IN FINANCE, INSURANCE & CLIMATOLOGY | 2077 |
| <i>Sabyasachi Guharay ; Kc Chang ; Jie Xu</i> | |
| PERFORMANCE OF THE NCV KALMAN FILTER WITH ECAE FOR TRACKING MANEUVERING TARGETS | 2085 |
| <i>W. D. Blair</i> | |
| DISTRIBUTION-DEPENDENT DISTANCE OF FIRST TWO MOMENTS | 2094 |
| <i>X. Rong Li</i> | |
| PARTICLE GAUSSIAN MIXTURE FILTERS: APPLICATION AND PERFORMANCE EVALUATION | 2102 |
| <i>Dilshad Raihan ; Suman Chakravorty</i> | |
| SENSOR SCHEDULING UNDER ACTION DEPENDENT DECISION-MAKING EPOCHS | 2110 |
| <i>Dilshad Raihan ; Weston Faber ; Suman Chakravorty ; Islam I. Hussein</i> | |
| ONLINE LEARNING TECHNIQUES FOR SPACE SITUATIONAL AWARENESS (POSTER) | 2117 |
| <i>Ashton E. Harvey ; Kathryn B. Laskey</i> | |
| UNSUPERVISED BAYESIAN ESTIMATION AND TRACKING OF TIME-VARYING CONVOLUTIVE MULTICHANNEL SYSTEMS | 2124 |
| <i>Herbert Buchner ; Karim Helwani ; Simon Godsill</i> | |
| Author Index | |