Author's Accepted Manuscript

Linear Fusion for Target Detection in Passive Multistatic Radar

Hong-Yan Zhao, Jun Liu, Zi-Jing Zhang, Hongwei Liu, Shenghua Zhou

www.elsevier.com/locate/sigpro

PII: S0165-1684(16)30135-9
DOI: http://dx.doi.org/10.1016/j.sigpro.2016.06.024
Reference: SIGPRO6184

To appear in: *Signal Processing*

Received date: 4 February 2016
Revised date: 21 June 2016
Accepted date: 23 June 2016

Cite this article as: Hong-Yan Zhao, Jun Liu, Zi-Jing Zhang, Hongwei Liu and Shenghua Zhou, Linear Fusion for Target Detection in Passive Multistatic Radar *Signal Processing,* http://dx.doi.org/10.1016/j.sigpro.2016.06.024

This is a PDF file of an unedited manuscript that has been accepted for publication. As a service to our customers we are providing this early version of the manuscript. The manuscript will undergo copyediting, typesetting, and review of the resulting galley proof before it is published in its final citable form. Please note that during the production process errors may be discovered which could affect the content, and all legal disclaimers that apply to the journal pertain

ACCEPTED MANUSCRIPT

Linear Fusion for Target Detection in Passive Multistatic Radar

Hong-Yan Zhao * Jun Liu* † Zi-Jing Zhang* Hongwei Liu* Shenghua Zhou*

June 27, 2016

Abstract

Passive multistatic radar is of great interest in both civilian and military applications due to its numerous advantages. A linear fusion framework for target detection in the passive multistatic radar is proposed here to improve the detection performance. In our framework, the global decision is the weighted combination of the local test statistics from spatially separated receivers, and the individual test statistics are computed through cross-correlation. A modified deflection coefficient is introduced as an optimization criterion for the selection of the weighting coefficients. Particularly, we give the weighting coefficient in closed form which is computationally efficient to calculate. In addition, we derive a closed-form expression for the probability of false alarm of this system, which is verified using Monte Carlo simulations. Numerical examples illustrate that our proposed approach outperforms its counterparts.

Keywords – Passive multistatic radar, cross-correlation, linear fusion, modified deflection coefficient, detection.

Accepted manuscript

*H.-Y. Zhao, J. Liu, Z.-J. Zhang, H. Liu, and S. Zhou are with the National Laboratory of Radar Signal Processing, and also with Collaborative Innovation Center of Information Sensing and Understanding at Xidian University, Xi'an, 710071, China.

†Corresponding author. E-mail: junliu@xidian.edu.cn

Download English Version:

https://daneshyari.com/en/article/6958197

Download Persian Version:

https://daneshyari.com/article/6958197

Daneshyari.com