Yajun Zeng

Curriculum Vitae

Automatic Target Recognition (ATR) Lab, Room 203, Beihang University, Beijing, China
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˝ Third-year Ph.D student

Education

2018.9–present: **Ph.D**, *Electronic and Engineering (EE)*, *Beihang University*, Beijing, China, GPA:3.94/4.0, rank: 2/66.
2014.9– 2018.7: **Bachelor**, *Geophysics*, *China University of Mining and Technology*, Beijing, China. GPA: 3.9/4 Score: 90/100, Rank: 2/30.

Research Interests

Information Fusion, Target Tracking, Sensor Resource Management, Signal processing, Parameter estimation

Publications

Journal

[1] J. Wang (Advisor), **Y. Zeng,** S. Wei, *et al*, "Multi-Sensor Track-to-Track Association and Spatial Registration Algorithm Under Incomplete Measurements," *IEEE Transactions on Signal Processing.*, vol. 69, pp. 3337-3350, May 2021.(Published)

Conference

[2] J. Wang (Advisor), **Y. Zeng**, S. Wei, *et al*, "Track-to-Track Association Algorithm Based on Adaptive Clustering Threshold," *IEEE International Conference on Signal, Information and Data Processing* (ICSIDP), 2019 pp. 1-4.(Published)

[3] J. Wang (Advisor), **Y. Zeng**, S. Wei, *et al*, "Spatial Registration Based on Weighted Fusion of Multiple Significant Targets," *IEEE CIE International Conference on Radar*, 2021. (under review)

Patents

[4] J. Wang (Advisor), **Y. Zeng**, C. Liu, S. Wei, *et al*, Spatial Registration Algorithm Under Incomplete Measurements, 2021. (under review)

† **Note.** In most universities of China, the first student author equals to the first author.

Experience

Research Experience

2020.9–Present: **Asynchronous Information Fusion**

- Main works:
  - proposed a residual bias estimation registration (RBER) method based on maximum likelihood.

- The RBER method realizes the update of incomplete measurements by sequential filtering technology and eliminates the systematic bias of sensors by using information on the significant targets.
- Compared with the MLR algorithm, the parameter estimation accuracy of the proposed algorithm is largely enhanced.

2020.10–Present: **Heterogeneous sensor fusion**

- Main works:
- proposed a residual bias estimation registration (RBER) method based on maximum likelihood.
- The RBER method realizes the update of incomplete measurements by sequential filtering technology and eliminates the systematic bias of sensors by using information on the significant targets.
- Compared with the MLR algorithm, the parameter estimation accuracy of the proposed algorithm is largely enhanced.

2019.9–2020.9: **Spatial Registration Algorithm Under Incomplete Measurement**.

- Main works[1] [3] [4]:
- proposed a residual bias estimation registration (RBER) method based on maximum likelihood.
- The RBER method realizes the update of incomplete measurements by sequential filtering technology and eliminates the systematic bias of sensors by using information on the significant targets.
- Compared with the MLR algorithm, the parameter estimation accuracy of the proposed algorithm is largely enhanced.

2018.9–2019.8: **Track-to-Track Association**

- Main works[1] [2]:
- proposed a the sequential m-best track association algorithm based on the new target density (SMBTANTD).
- The SMBTANTD algorithm introduces a new target density in the correlation matrix, which effectively solves the association problem in scenarios where the numbers of targets measured by multiple sensors are inconsistent. Moreover, the SMBTANTD algorithm can also improve the cost likelihood function to increase the track association rate.
- Compared with the association algorithm based on traditional fuzzy functions and generalized likelihood , the association performance in terms of association accuracy using the SMBTANTD method was globally improved.

Teaching Experience

2019.3–2019.6: **Teacher Assistant**, *" Training of Electronic Design" for undergraduate student*.

2018.9–2019.1: **Teacher Assistant**, *" Digital Signal Processing" for undergraduate student*.

Social Experience

2015.7–2016.7: **Deputy Minister of Student Club in China University of Mining and Technology**, *directly*

2016.7: **Excellent Volunteer(Warm Winter Clothes)**

Awards and Scholarships

Some selected honors:

2018.7**: Outstanding Graduate of Beijing City**

2018.7: **3nd Prize in Geophysics Competition for Chinese College Students. National Level**

2017.9: **Outstanding Student of China University of Mining and Technology**

2017.9: **Academic Scholarship of China University of Mining and Technology, First**
2016.6: **China National Scholarship**
2016.6: **First-class scholarship for study**

Software skills

Programming：Python, Matlab, C, C++,
Platform：OpenCV
Word-editing：LaTex, Microsoft Office, Adobe Acrobat