

# Multi-source Information Fusion for Target Recognition and Tracking

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## Abstract

Multi-source information fusion can effectively enhance target recognition and tracking performance. Because of the complex sensing environment, the target observations become quite uncertain, heterogeneous and even conflicting, and this makes the information fusion face great challenge. We will introduce a generalized credal classification model for uncertain data, and it can reveal classification imprecision and reduce error risk thanks to the meta-class. Then, the multi-source heterogeneous data transferred fusion method will be presented for intelligent target recognition, and this can improve recognition rates by taking advantage of the complementary knowledge from different sources. Finally, the maneuvering target tracking and reasoning method will be introduced to stably track the target and correctly predict its intention.



**Zhunga Liu** received the Bachelor, Master and PhD degrees in control science and engineering from Northwestern Polytechnique University (NPU) respectively. Now he is a professor in School of Automation, NPU. He has published some papers in international journals such as IEEE TPAMI/TCYB/TNNLS. He host several projects like National Natural Science Foundation of China. He is currently serving as an Associate Editor/Editorial Board Member of IEEE Transactions on Systems, Man, and Cybernetics- Systems, International Journal of Approximate Reasoning , and Chinese Journal of Aeronautics. His current research interests mainly focus on multi-source information fusion and target recognition and tracking.

He has received numerous awards, including the First Prize in Natural Science from the Chinese Association of Automation, the Second Prize in Technological Invention from the Ministry of Education, the First Prize in Natural Science from Shaanxi Province, and the Youth Science and Technology Award from the Chinese Society of Aeronautics and Astronautics. Additionally, he serves on the editorial boards of international journals such as IEEE TSMC and Chinese Journal of Aeronautics, and is a council member of the Chinese Society of Aeronautics and Astronautics.

