

Visual Object Tracking across Modalities

Foundations, Methods, and Future Directions

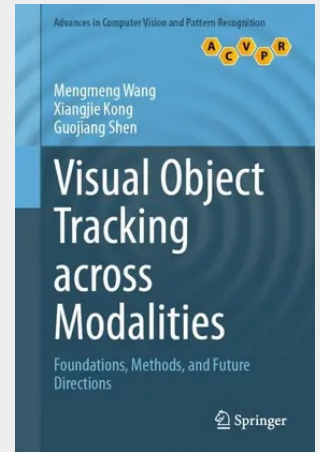
Discover the cutting-edge advancements in visual object tracking (VOT) with this comprehensive resource, designed to revolutionize how researchers and professionals approach tracking systems. This book presents deep learning techniques and multimodal fusion strategies, offering state-of-the-art solutions for robust and accurate object tracking in dynamic environments.

With applications ranging from autonomous vehicles to intelligent surveillance, VOT has become a cornerstone of modern computer vision. By addressing challenges like scalability, real-time performance, and robustness, this book equips readers with the tools to navigate the rapidly evolving landscape of tracking systems. It's the first of its kind to seamlessly integrate single-modal and multimodal approaches, bridging the gap between foundational methods and emerging technologies.

Explore key topics including Siamese networks, transformer-based models, RGB-LiDAR and RGB-thermal fusion, and spatio-temporal modeling. Gain insights into benchmark datasets, evaluation protocols, and future trends like large model transfer and cross-domain learning. Each chapter builds on the next, ensuring a structured progression from theoretical principles to practical applications.

Whether you're a researcher, practitioner, or student in computer vision, artificial intelligence, or machine learning, this book is an indispensable guide to mastering VOT. A basic understanding of computer science and deep learning concepts is recommended to fully benefit from the material.

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