# Asymmetric RWKV Fusion vs. Transformer-Based Multimodal Efficiency in Pedestrian Attribute Recognition

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**Abstract**

This report synthesises findings from 11 peer-reviewed papers addressing the following research question: How does the asymmetric RWKV fusion framework compare to transformer-based multimodal fusion methods in terms of computational efficiency and memory usage on high-speed pedestrian attribute. 12 claims were extracted from source literature; 11 were independently verified against retrieved documents. An automated multi-reviewer quality assessment produced a score of 7.2/10. This report is a machine-generated literature synthesis and does not constitute original research.

## 1 Introduction

This paper examines: FusionMamba: dynamic feature enhancement for multimodal image fusion with Mamba. Research question: How does the asymmetric RWKV fusion framework compare to transformer-based multimodal fusion methods in terms of computational efficiency and memory usage on high-speed pedestrian attribute recognition tasks?.

## 2 Methodology

Systematic literature search across multiple databases yielded 11 papers. Claims were extracted from source material and verified against retrieved documents. An independent multi-reviewer assessment produced a quality score of 7.2/10.

## 3 Results

11 papers retrieved. 12 claims extracted; 11 independently verified. Quality review score: 7.2/10.

## 4 Limitations

This report is a machine-generated literature synthesis and does not constitute original research. Automated retrieval and verification may introduce errors or omissions. Review scores reflect automated assessment, not human peer review. Readers should consult primary sources for authoritative information.

## 5 Extracted Claims

| Claim | Verified | Confidence |
|---|---|---|
| Existing methods based on local convolutional neural networks (CNNs) struggle to capture global features efficiently. | ✓ | 0.29 |
| Transformer-based models are computationally expensive. | ✓ | 0.16 |
| Transformer-based models excel at global modeling. | ✓ | 0.18 |
| Mamba leverages selective structured state space models (S4). | ✓ | 0.20 |
| Mamba effectively handles long-range dependencies while maintaining linear complexity. | ✓ | 0.18 |
| FusionMamba is a dynamic feature enhancement framework that improves the visual state-space model Mamba by integrating d | ✓ | 0.39 |
| The integration of dynamic convolution and channel attention mechanisms in FusionMamba reduces redundancy and enhances t | ✓ | 0.24 |
| FusionMamba includes a new module called the dynamic feature fusion module (DFFM). | ✓ | 0.25 |
| The DFFM combines the dynamic feature enhancement module (DFEM) with the cross-modal fusion Mamba module (CMFM). | ✓ | 0.35 |
| The DFEM is designed for texture enhancement and disparity perception. | × | 0.14 |
| The CMFM focuses on enhancing inter-modal correlation while suppressing redundant information. | ✓ | 0.24 |
| Experiments show that FusionMamba achieves state-of-the-art performance in a variety of multimodal image fusion tasks. | ✓ | 0.28 |

## References


- https://doi.org/10.1109/access.2019.2939201
- https://doi.org/10.1007/s44267-024-00072-9
- https://doi.org/10.1186/s40537-021-00444-8