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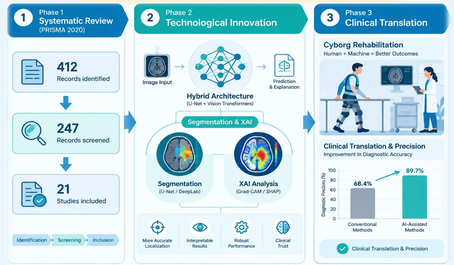


# Advancements in Computer-Aided Diagnosis Systems for Medical Imaging: A Comprehensive Review of Accuracy Enhancement and Segmentation Techniques

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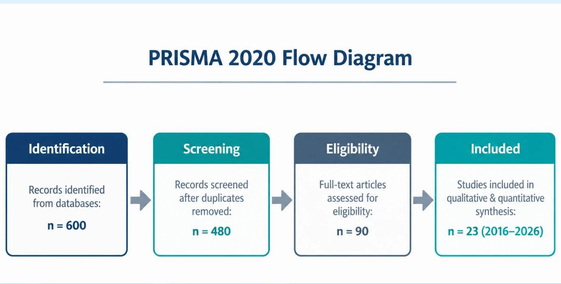
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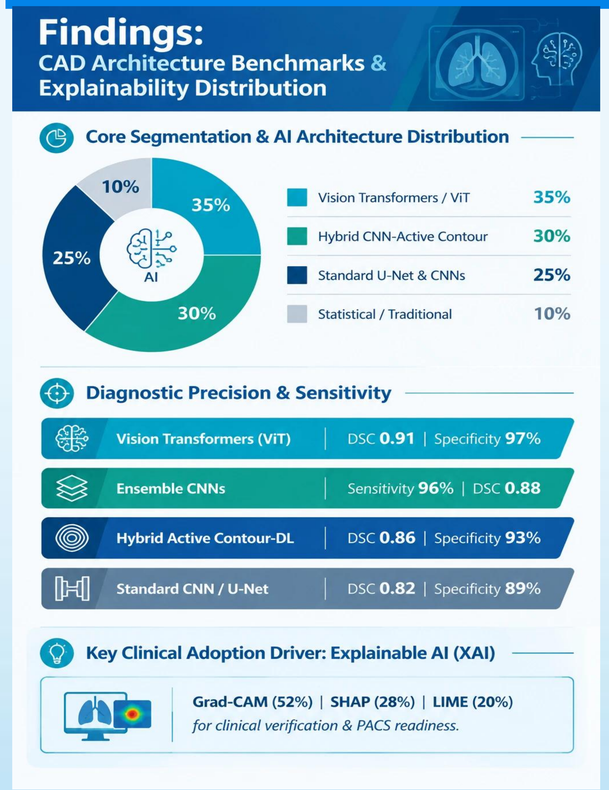

## Backgrounds

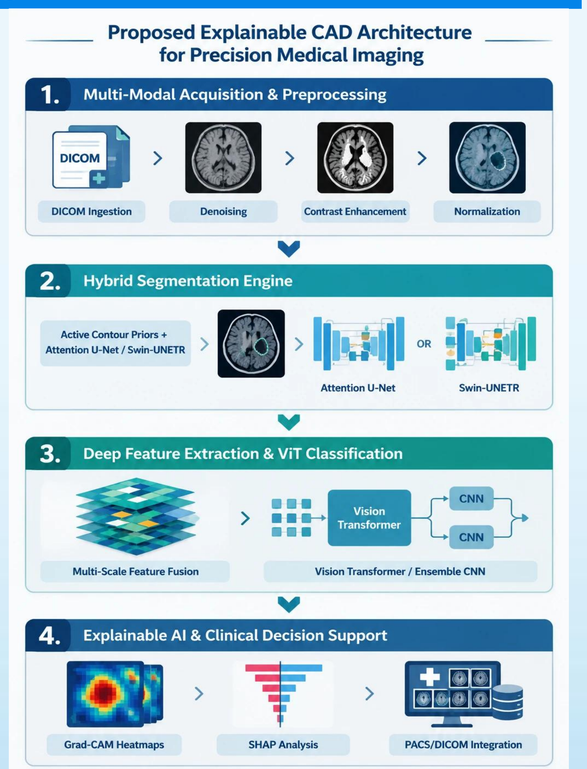
- **Imaging Role:** Medical imaging serves as the cornerstone of contemporary clinical decision-making.
- **Technological Shift:** The transition of CAD systems from basic enhancement tools to sophisticated, deep learning (DL)-driven predictive models.
- **Segmentation Cruciality:** Precise ROI segmentation is the fundamental prerequisite for reliable CAD pipelines.
- **Clinical Translation Barriers:**
- The “black-box” nature of deep neural networks hindering clinical trust.
- Data heterogeneity and challenges in result reproducibility.
- **Objective:** Critically synthesize recent advancements in hybrid architectures and Explainable AI (XAI) to overcome clinical bottlenecks and enhance diagnostic precision.

## Methods

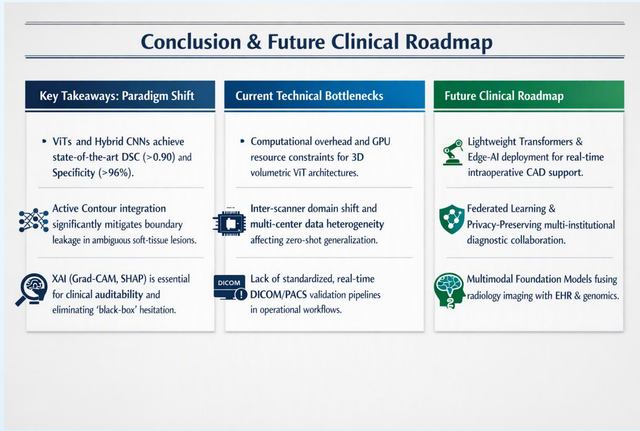



## Findings




## Conclusion




## References

1. Zarei A, Rad EM, Bajestani SS, Zendehbad SA. Providing a prostate cancer detection and prevention method with developed deep learning approach. Prostate Cancer. 2025;2025(1):2019841.
2. Gao Y, Jiang Y, Peng Y, Yuan F, Zhang X, Wang J. Medical image segmentation: a comprehensive review of deep learning-based methods. Tomography. 2025;11(5):52.
3. Akhtaruzzaman M, Shemanto MU, Ebert MA, Parizel PM, Parveen A, Parvez M. Advances in AI-driven medical imaging and diagnostics: a comprehensive review. Artif Intell Med Data Process. 2027:56-74.
4. Zarei A, Javidnezhad E, Meysami MS. Deep Markov Neural Clustering: An Optimized Framework for Accurate Detection of Hepatitis B. In2026 International Biennial Conference on Advances in Artificial Intelligence and Data Science (IBAAIDS) 2026 Jan 27 (pp. 1-7). IEEE