

Test-Time Scaling and Self-Verification for *Precision* Alzheimer's Diagnostics: **Thinking Slower to Think Better**

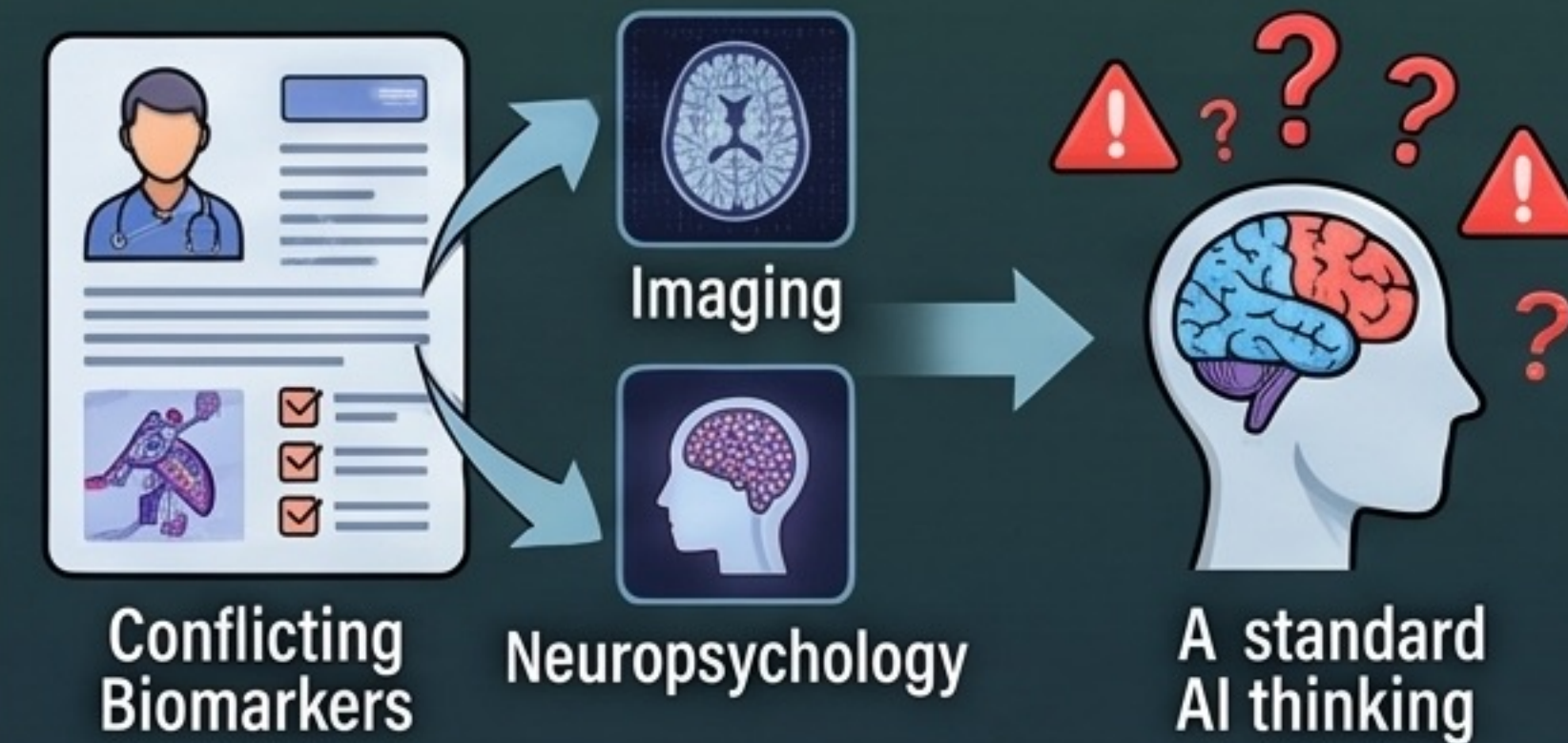
KEY TAKEAWAY: Recursive Self-Verification at Inference Time fundamentally alters AI reliability, improving diagnostic accuracy by **34%** in complex cases by trading speed for structured self-correction.

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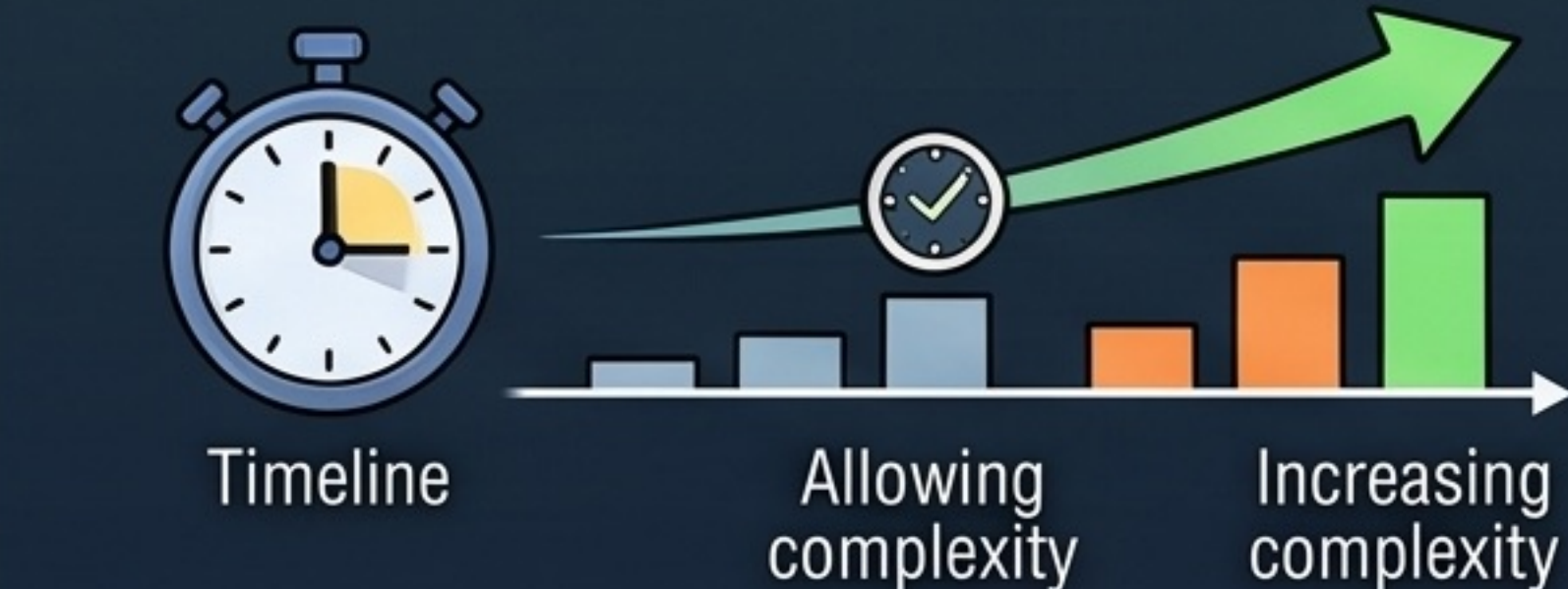
1. INTRODUCTION



Problem: Advanced Large Language Models (LLMs) can struggle with hallucinations and logical errors in complex patient data.

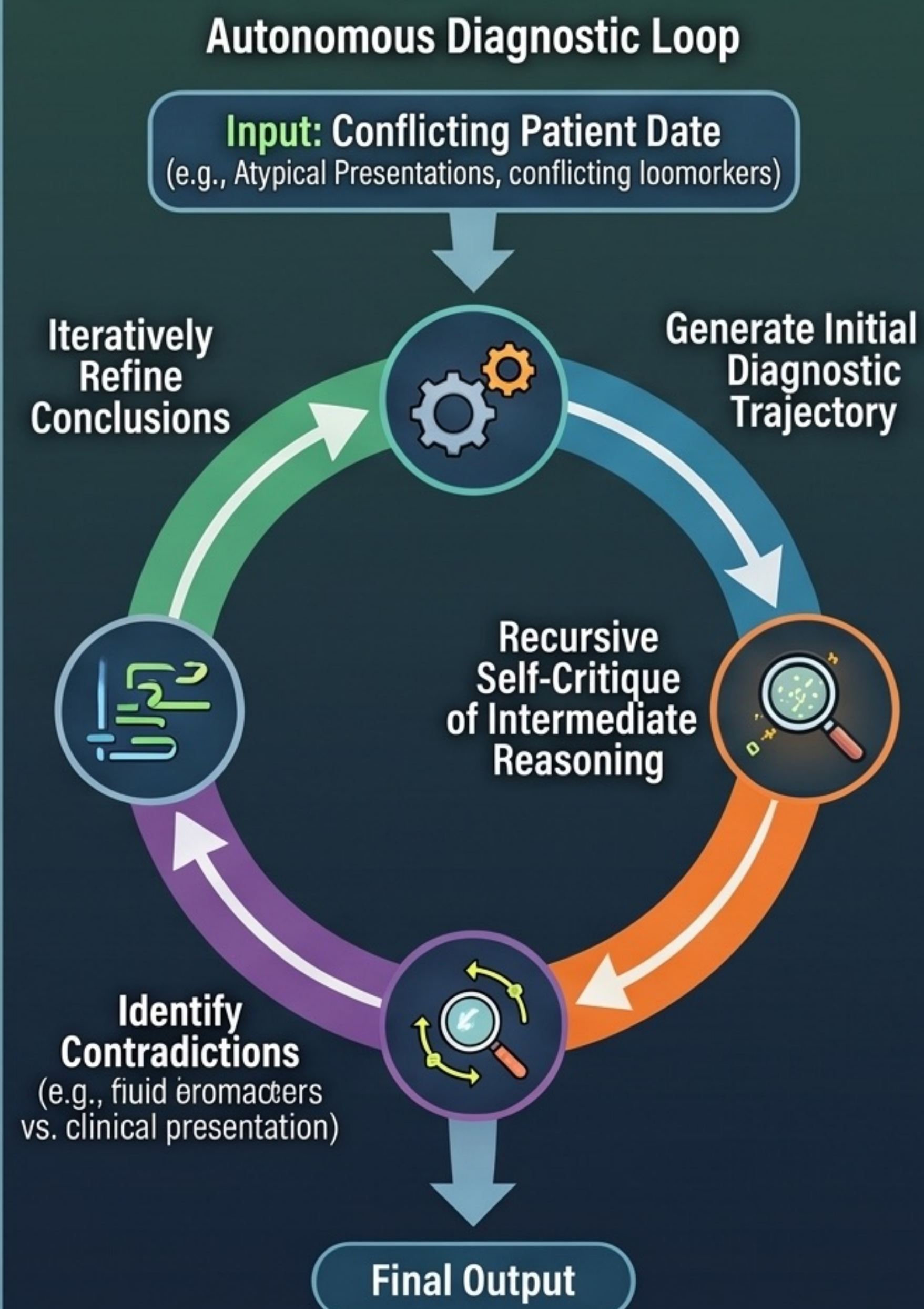


Solution: Apply **Self-Enhanced Test-Time Scaling**. Allowing models to 'think longer' systematically improves performance.



Goal: Developed an autonomous loop for recursive self-correction in multimodal Alzheimer's diagnostics.

2. METHODS

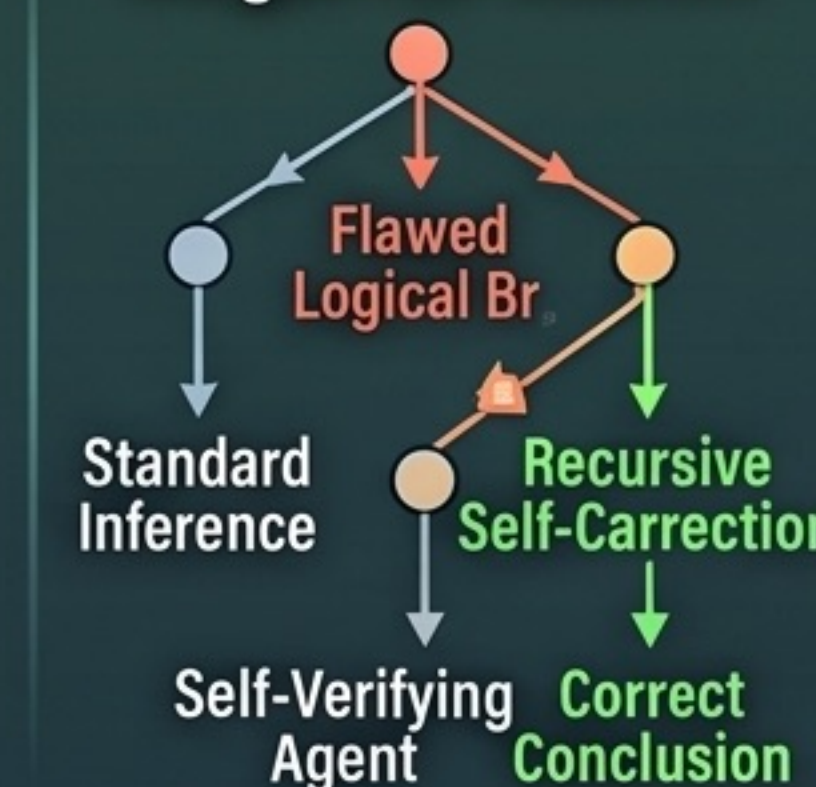


3. RESULTS

Diagnostic Accuracy Gains



Eliminates Premature Diagnostic Closure



Reasoning Chains Mirror Expert Attestation



Temporal Coupling of Resolution and Refinement

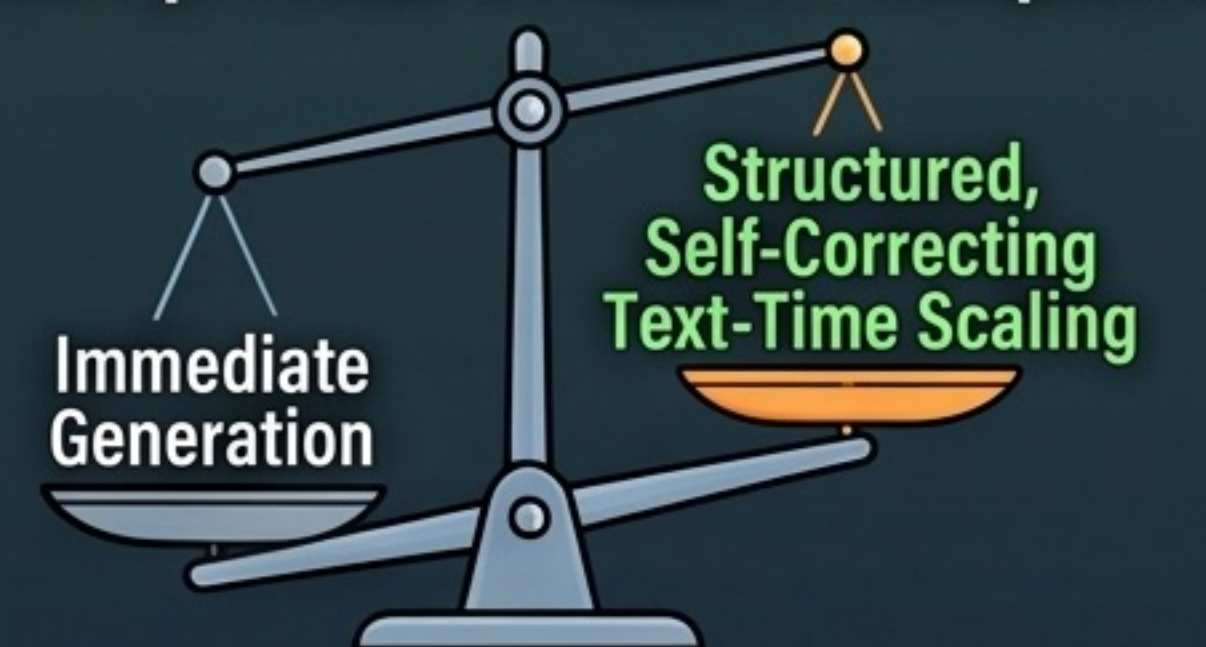


4. CONCLUSIONS

Enhanced Reliability in Clinical Neurology



Trade-off: Speed vs. Structured Computation



autonomous diagnostic assistant



A clinician to recursive reasoning on smart digital recursive reasoning, helping guide diagnosis for complex phenotypes