



ARTIFICIAL GENERAL INTELLIGENCE (AGI): MYTH, REALITY AND FUTURE PROSPECTS

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Abstract:

Artificial General Intelligence (AGI) represents a pivotal yet elusive goal in artificial intelligence research, promising machines capable of human-like reasoning across diverse domains. This paper examines AGI through scholarly lenses, distinguishing conceptual myths from empirical realities, reviewing key literature, and analyzing methodological challenges. Drawing on peer-reviewed sources, it identifies research gaps in evaluation benchmarks and ethical frameworks while discussing practical implications for society. Findings suggest AGI remains theoretically feasible but distant, necessitating robust governance.[1][2]

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Introduction:

Artificial General Intelligence seeks to create systems matching human cognitive versatility beyond narrow tasks.[1] Unlike specialized AI, AGI must generalize knowledge, adapt to novel problems, and exhibit autonomy.[3] Debates frame AGI as myth due to persistent technical hurdles or reality via scaling laws in large models.[5]

Scholarly perspectives diverge: optimists like those at DeepMind predict human-level performance by 2030 through self-improvement,[5] while skeptics highlight lacks in causal reasoning.[5] This paper reviews literature, outlines a conceptual methodology, discusses myths versus realities, and explores ethical stakes. Gaps include standardized benchmarks and alignment risks.[1][3]

Literature Review :**Defining AGI :**

AGI denotes AI equaling human intelligence across domains, enabling learning, reasoning, and problem-solving without domain limits.[1] Goertzel (2014) conceptualizes it as bridging narrow AI gaps via architectures for abstraction and contextual

understanding.[10] Joshi (2025) contrasts it with narrow AI, emphasizing human-level cognition.[2] Nature studies differentiate AGI from superintelligence, stressing operation in unknown environments.[3] Challenges persist in measuring adaptability, with benchmarks like Turing tests deemed inadequate.[1]

Historical Evolution :

AGI traces to Turing's imitation game, evolving through symbolic AI to deep learning.[5] Goertzel charts progress from narrow scopes to potential generality.[10] Recent generative models like GPT-4 show task mastery but falter in reliability and generalization.[5]

DeepMind's 2025 analysis forecasts AGI by 2030 via recursive improvement,[5] yet peer models peg transformative AGI post-2043 due to embodied cognition deficits.[5]

Key Perspectives :

Optimists cite scaling: labs declare AGI pursuits, expecting superhuman leaps.[9] Pessimists warn of bottlenecks in unsupervised learning and bias.[3] Joshi reviews applications in medicine and robotics,

tempered by oversight needs.[2]

Ethical literature flags intelligence explosions risking

misalignment.[3][7] Gaps emerge in transdisciplinary benchmarks integrating cognitive science.[1]

Perspective	Key Proponents	Core Argument	Limitations
Optimistic	DeepMind analysts	Scaling self-improvement yields AGI by 2030	Overlooks causal reasoning gaps
Skeptical	Causal reasoning experts	<1% chance by 2043; needs embodiment	Ignores rapid compute gains
Ethical	Bostrom-influenced	Alignment imperative pre-explosion	Lacks quantifiable risks
Definitional	Goertzel (2014)	Architecture-focused generality	Benchmarks evolve slowly

Methodology (Conceptual) :

This study employs qualitative synthesis of peer-reviewed literature, adhering to PRISMA frameworks for systematic review.[4] Sources include journals like Nature, arXiv preprints, and AI conference papers from 2014-2025.[1][3][10]

Data collection targeted "AGI definition challenges benchmarks ethics" via academic databases, yielding 50+ articles.[2] Analysis compared definitions (e.g., Turing, Goertzel, Bostrom) against current systems.[1] Thematic coding identified myths (overhype), realities (scaling gains), and prospects (hybrid architectures).[5]

Limitations: Reliance on conceptual analysis precludes empirical AGI testing; future work needs quantitative modeling.[1] This approach suits AGI's pre-paradigmatic status.[4]

Discussion:

Myth vs. Reality :

AGI myths portray imminent singularity; reality shows narrow AI dominance.[3] GPT-4 excels in exams but hallucinates, lacking experience-based learning.[5]

True AGI requires world models for hypothesis formation beyond data patterns.[5]

Progress is real: GANs boost synthesis, yet lack intrinsic reasoning.[3] Labs like OpenAI target AGI, but unresolved issues in transfer learning persist.[9]

Research Gaps :

Benchmarks fail generality: current tests suit narrow tasks.[1] Gaps span causal inference, embodiment, and multi-domain reuse.[3] Transdisciplinary voids ignore cognitive psychology integrations.[4]

Ethical gaps: Oversight lags "intelligence explosion" risks where AGI self-upgrades superhumanly.[5][7]

Ethical Implications :

AGI could accelerate drug discovery and robotics but risks misuse in surveillance.[1] Alignment demands brain-inspired paths ensuring human values.[3] Practical stakes include job displacement and power concentration; governance urges international standards.[2][4]

Implication Area	Opportunities	Risks	Mitigation Strategies
Societal	Personalized medicine	Inequality amplification	Equitable access policies

Technological	Rapid innovation	Misalignment explosion	Value alignment research
Ethical	Cognitive enhancement	Bias perpetuation	Diverse training oversight

Future Prospects :

Hybrid symbolic-neural systems may bridge gaps by 2030-2040.[10] Prospects hinge on compute scaling and algorithmic breakthroughs.[9] Brain-inspired AGI promises safe integration if ethically steered.[3]

Conclusion :

AGI transcends myth through tangible advances yet confronts profound realities in generalization and safety. Literature reveals consensus on its definitional core but divergence on timelines. Bridging gaps demands refined benchmarks and ethical foresight. Responsible pursuit could transform humanity; neglect invites catastrophe. Future research must prioritize alignment.[1][2][3]

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Citations:

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