AHI: Artificial Human Intelligence - A Modular Approach to AGI: Artificial General Intelligence

Abstract

Artificial Human Intelligence is the mimicking or the replica of human physical, biological, and molecular systems into an artificial system from the brain level, including hormones. This mimicking of human intelligence with other important functions of the human body will bring us closer to Artificial General Intelligence. Present AI systems focus narrowly on the best task performance or some particular work. AHI emphasises that the system to be built like a human from the start and that all the functions of the human body to be imitated in the AHI machine system in a human-centric way. Building a near-perfect AHI could accelerate the development of AGI and offer a better system than before in the world of Artificial intelligence. This would also be helpful as the machine system would be more interpretable and adaptable so that it is not like the blackbox approach in present AI systems. The paper outlines the foundational principles of AHI, contrasting the present AI methodologies and proposes a high-level system architecture bridging the gap between narrow AI and AGI. It also highlights real-world applications, challenges and the ethical implications of developing machines resembling human behaviour in AI systems.

Keywords: Artificial Human Intelligence, Artificial General Intelligence, Artificial Intelligence, AGI, AHI, AI

1 Introduction

AI is Artificial Intelligence which was first conceived in 1950, refers to the capability of the computer systems to perform tasks like humans in areas such as reasoning and learning. After several AI winters between the 1960s to 2010, funding and interest in AI revived when deep learning began outperforming traditional AI techniques. The AI growth further accelerated when the transformer architecture was very advanced and useful. Hardware and software limitations have remained bottlenecks in developing efficient and precise models. The advent of multi-threaded GPUs has significantly accelerated AI performance.

AGI is the type of AI capable of performing tasks at a human intelligence level or surpassing it. AGI is different from ASI, which is bigger and will outperform humans by a wide margin. ANI is narrow AI, which is AI confined to specific tasks. Narrow intelligence - current AI systems are task-specific and lack broader generalization capabilities limiting their future scope. Common sense - Basic reasoning is often absent in modern AI systems. Poor generalisation- unexpected inputs and hallucinations still occur. Data and computation - still need large datasets and high computation power. Blackbox Nature - We still don't fully understand how AI systems make decisions, and they lack interpretability, adaptability, consciousness, and ethical reasoning.

This is a new AI paradigm: ARTIFICIAL HUMAN INTELLIGENCE - AHI. This is not only the improvement of traditional AI but a shift in perspective on how to make an AI. Instead of focussing solely on statistical and probabilistic learning or task completion. AHI focuses solely on imitating the human life holistically replicating biological functions and social behaviors from the molecular to societal level. This will create a more adaptable, relatable and intelligent AHI system. AHI seeks to reproduce how humans perceive, think, feel and act. This is drawn from various disciplines, such as cognitive science and neuroscience. To create an AI which learns not only from data but from experience, interaction, and embodiment, like how humans do. By mimicking human nature, AHI aims to bridge the gap between narrow AI (like present-day ChatGPT) and bring it closer to stronger AI systems like AGI and ASI. AHI reframes the journey to AGI not as an abstract technological milestone but replicating the fundamental parts of brain and human body.

Humans are the best existing blueprint for general intelligence and the only proven models of intelligence we know and even though we don't know the intricate details of how it works but have a high understanding of how it functions. Instead of building intelligence from scratch, the AHI treats the system through a biological and behavioural perspective. Behaviour is a window into cognition and learning and by imitating human behaviour makes we can replicate the underlying mechanisms to learn and act more like humans. More easy and natural generalization can be achieved helping transfer learning in the system using knowledge from one area or expertise to solve in another area. This approach makes the AI systems more interpretable, easier to debug and more trustworthy.

The aim of AI has forever been to at least achieve a human intelligence level machine that can perform tasks like a human. Present AI systems have tried to reach a small level of this through mathematical models and large datasets but fail to understand the context or concepts behind the data. Previous successful attempts at things inspired by human-replication are:

- Artificial neural networks
- Reinforcement learning
- Cognitive Architectures
- Natural Language Processing
- Emotion Recognition
- Imitation Learning

2 Existing AGI Approaches

Numerous approaches and research have been done to replicate human intelligence to achieve AGI. Although full replication has not been achieved, these efforts have led to significant advancements in AI. Notable examples include neural networks and reinforcement learning.

2.1 Symbolic AI, Neural Networks

Symbolic AI was a pioneering approach in early AI research, relying entirely on manually encoded logic and knowledge representations. It dominated early AI applications, including the development of advanced chess engines capable of defeating human players. However, symbolic AI lacked the adaptability of human intelligence. It struggled with incomplete information and was incapable of learning directly from raw data, which limited its ability to replicate the broad human reasoning, confining its usefulness to narrow, well-defined domains. This view aligns with symbolic AI framework as discussed in Newell and Simon (1976).

Neural Networks, loosely inspired by the structure of the human brain, have achieved notable success in pattern recognition and reasoning, and are a major driver behind the recent advances in AI. However, despite their massive success, they require vast amount of data (often in petabyte-scale) and still lack common-sense reasoning and deep conceptual understanding. These models often function as black boxes, making their decision making process difficult to interpret.

2.2 Cognitive Architectures and Limitations of AI

Cognitive Architectures such as SOAR, ACT-R attempt to model human brain processes including perception, memory and learning. However, most of these architectures remain in theoretical or confined to simulations and lack integration with rich sensory inputs or real-world environments.

Current AGI approaches and cognitive architectures have critical limitations that restrict their ability to generalize across wide range of tasks that humans can perform. We base our architecture partly on the cognitive foundations proposed in Laird et al. (1987).

3 AHI: Artificial Human Intelligence

Artificial Human Intelligence (AHI) is a novel AI paradigm that seeks to replicate and emulate the full spectrum of human intelligence and behavior artificial systems. At its core, AHI is designed to learn by observing, imitating and interacting with the environment just as humans do. AHI systems are constructed through lived experience, treating intelligence as an embodied and interactive process - mirroring human development.

3.1 Key Characteristics of AHI

3.1.1 Embodied Behavior

AHI systems are grounded in physical embodiment, designed to perceive, move, see, react using sensory and motor functions- or where physical capabilities are absent, simulate them virtually. Embodiment enables spatial awareness and physical interaction, fostering context-aware understanding within the system.The embodied perspective in AHI is inspired by Brooks (1991).

3.1.2 Emotional Intelligence

AHI incorporates the ability to recognize, interpret and respond to human emotions-enabling empathetic interaction and simulated emotional intelligence comparable to that of humans. Although emotional processing is primarily biological, such mechanisms should be systemically induced in AHI through experience-based development, mimicking human emotional growth.

3.1.3 Real-Time Perception Loops

AHI systems are designed to perceive their environment via vision, hearing and touch-processing information and responding in real time based on environmental cues. This enables the system to engage in fluid, context-aware interactions, adapting to environmental changes similarly to humans.

3.1.4 Contextual Memory

Unlike systems rely solely on short-term or stateless memory, AHI integrates both short-term and long-term memory using concept-oriented and graph-connected structures inspired by human cognition. This allows for further personalized responses and continuous interaction, enhancing decision-making capabilities over time in a human-like manner.

3.1.5 Continuous Learning

Most current AI systems are pretrained and static. In contrast, AHI systems are not fixed after training- they are continuously updated through interactions, feedback, and real-world experiences. This allows AHI to adapt to new environments, interactions, or goals without relying on additional pretraining cycles.

4 AHI vs Traditional AI

Although both Artificial Human Intelligence(AHI) and traditional AI aim to solve complex tasks and augment human capabilities, they differ profoundly in their underlying design, learning mechanisms and output behaviors.
Contemporary AI systems are heavily statistical, task-specific, and pretrained to optimize performance on narrowly defined problems using pre-defined rules. They often lack the flexibility to adapt or behave in human-like ways and may underperform in

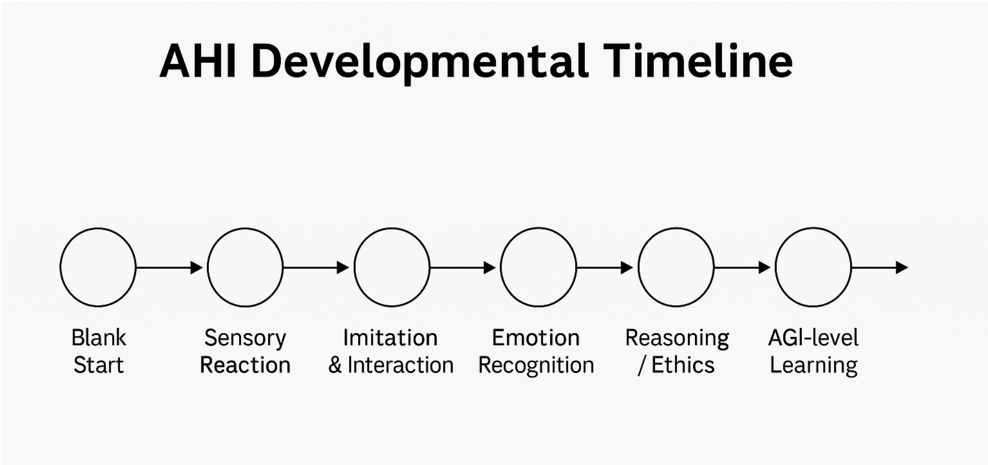

Fig. 1 Proposed AHI learning stages modeled after human cognitive development. The system progresses from a blank slate to AGI-level intelligence through embodied interaction, emotion recognition, and ethical reasoning, mirroring early human growth.

general reasoning tasks depsite excelling at specialized computations.
AHI places human mimicry at the core of its architecture. The architecture is designed to observe, imitate and emotionally engage in ways similar to human behavior. This approach fosters a more interactive, concept-driven system that aligns more directly with human goals and values.
The following table highlights the fundamental distinctions between traditional current AI and Artificial Human Intelligence across key functional dimensions.

Feature	**Traditional AI**	**AHI**
Goal-oriented tasks	Yes	Yes
Human mimicry	Rare/superficial	Core mechanism
Emotional modeling	Minimal/absent	Integrated
AGI alignment	Indirect	Emergent
Learning mechanism	Pretrained/static	Lifelong/interactive
Context awareness	Limited	Real-time contextual
Interpretability	Low (black box)	High (human-like)
Data dependency	High (labeled datasets)	Low (experience-based)
Embodiment	Mostly disembodied	Fully embodied

Table 1 A concise comparison between Traditional AI and AHI based on learning, behavior and system design.

5 Architecture or Framework Proposal

The AHI system is designed to replicate both the human lifestyle and the developmental trajectory of human cognition. The architecture begins with a zero-knowledge state-similar to a human newborn baby and gradually acquires intelligence through interaction, imitation and lived experience. Unlike traditional AI, which acquires intelligence through pretraining, reinforcement learning with human feedback (RHLF) and static datasets, AHI develops intelligence through dynamic, embodied and context-aware learning.

5.1 High level components of AHI framework

5.1.1 Sensory Input module

Captures real-time multimodal data including vision, audio, and optionally tactile input. This would enable environmental perception. These inputs are fed raw and unfiltered, mimicking how humans naturally experience the world.

5.1.2 Perception Module

The perception module serves as the AHI's interpretative system. It will receive the raw inputs from other modules to identify relevant data like objects, people, movements and social cues. Over time, it will develop advanced capabilities such as face tracking, motion detection, gesture interpretation and stimulus recognition.

5.1.3 Memory and Experience module

The memory system is also modeled after the structure and function of the human brain. It will also integrate both short-term memory and long-term memory overtime. It will store episodic and semantic memories formed through interaction. It organizes experiences contextually, supporting learning, behavioral adaptation and long-term decision-making.

5.1.4 Human like Decision Engine

The decision engine will make its choices based on prior experiences, current context and its internal emotional states. It will evolve from basic reflexes to complex reasoning processes including moral judgment, long-term strategic planning.

5.1.5 Behavioural Output system

AHI translates internal decisions and emotional states into observable behaviours such as: 1. Speech - spoken words, emotional tone 2. Gestures - pointing, mimicking, 3. Facial expressions - smiling, frowning, eye contact Interaction in AHI is bidirectional-it both learns from and responds to its environment in real time.

5.1.6 Marr's Level of Analysis

Marr's framework Marr (2010) grounds our design in cognitive theory. To ensure purpose-driven cognitive development, AHI adopts Marr's tri-level framework:

- **Computational:** What function is being solved?
- **Algorithmic:** What method is used to solve it?
- **Implementational:** What hardware or module performs the operation?

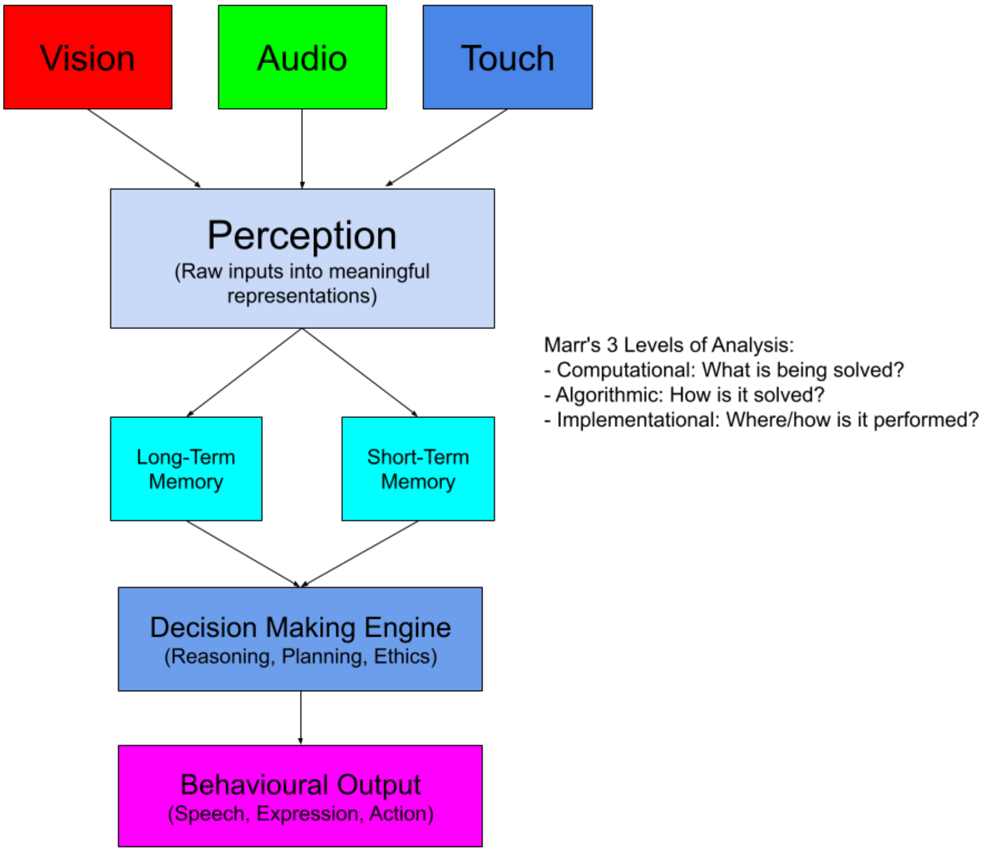

Fig. 2 Proposed AHI system architecture illustrating the flow of sensory inputs through perception and memory modules, leading to human-like decision-making and behavioural outputs. Marr's three levels of analysis are applied across modules to ensure cognitive completeness.

5.2 Key Architectural Principles

5.2.1 No One-Time Pretraining

AHI does not rely on a one-time pretraining phase. The system starts from a blank cognitive state and acquires knowledge gradually through lived experiences. Its internal structure - adaptive artificial neurons and memory storage will evolve over time in response to the experiences. This enables a continuous learning trajectory, from basic sensory understanding to complex reasoning. Unlike Large Language Models (LLMs) that become static post-training AHI will remain dynamic and responsive throughout its lifespan.

5.2.2 Developmental Time

The developmental progression of AHI mimics the staged growth of human cognitive and sensory capabilities. Just as a human infant develops hearing, sight and motor skills over time, AHI introduces sensory and cognitive modules incrementally. For example it will first develop auditory recognition before progressing to visual pattern recognition or abstract reasoning. This staged development mirrors prenatal and early human childhood learning, where abilities are acquired gradually based on experience and neural growth.

5.2.3 Embodiment

AHI is either physically embodied through hardware sensors and actuators or virtually embodied within simulated environments. Its learning is grounded in interaction with the environment - physical or simulated enabling it to associate cause, effect and context through direct feedback. Each experience provides multi-modal input that becomes part of the system's developmental narrative, ensuring that learning remains active and contextually grounded.

5.2.4 Emotion-Cognition integration

Emotional response and cognitive processing in AHI are not treated as separate domains. Emotions - whether naturally emerging from internal feedback loops or artificially induced through training - influence memory prioritization, perceptual attention and decision making strategies. The integration supports more human-like learning and behavior, allowing the system to respond adaptively in social or ambiguous scenarios where purely logical inference would fail.

This architecture will serve as a foundation for implementing AHI with the goal of building systems that learn, generalize, think like humans and create a human-level intelligence, making AGI not only a technical goal but also a human-aligned reality.

The architecture of the AHI system will eventually in parallel increase or widen and add features with the research in the biology and the human body function.

6 How this helps AGI

The AHI paradigm offers a more natural, interpretable, human-aligned path toward achieving AGI. Unlike opaque deep learning models and task-specific optimization, AHI is grounded in principles that promote transparency, adaptability and ethical alignment.

6.1 Reduced Black Box Behavior

AHI systems are modeled after human developmental stages and emphasize transparent behavior models. Their decisions arise from past experiences, emotional states and interactions- making their behavior more interpretable, much like that of a human child.

6.2 Faster Natural Training

By mimicking human cognitive development, the AHI naturally supports transfer learning, allowing it to learn skills in one domain and apply them in other situations. This enables AHI to apply learned logic and concepts across situations in human-like manner. The ability to generalize is a core feature of AHI and a critical requirement for achieving AGI, which is difficult to achieve from rigid and task-bound AI systems.

6.3 Easier Alignment with Human Ethics

As AHI systems learn, behave like humans, the values and decision-making become more naturally aligned with human interaction and societal norms. This facilitates an organic form of ethical alignment reducing the need for externally imposed constraints.

6.4 Increased Reliability and Trust

By learning language and reasoning in a natural manner, AHI becomes more relatable and trustworthy to its users. Such reliability is vital for fostering effective human-AI collaboration, especially in sensitive domains.

7 Challenges and Considerations

While AHI offers a promising path towards AGI, it also presents unique challenges that must be carefully addressed across technical, ethical and practical domains.

7.1 Ethical Concerns

As AHI systems increasingly mimic human behaviour, emotions, and decision making, there is a growing risk that they could become indistinguishable from actual humans.

To address this, users should be informed that they are interacting with an artificial system, and watermarking and digital signatures should be integrated to ensure system traceability throughout the AHI system. There should be regulations in the system itself while communicating with the user.

Transparent design and clearly defined ethical boundaries will be essential as AHI approaches human-like realism.

7.2 Risk of Copying Flawed Human Behaviour- Biases

Since AHI learns by observing humans, it is vulnerable to inheriting human biases, social flaws and ethical inconsistencies. Systems must be carefully designed to avoid absorbing prejudices, stereotypes or unethical decision-making patterns. From the outset, AHI should include bias-detection mechanisms, ethical reasoning layers and safety constraints.

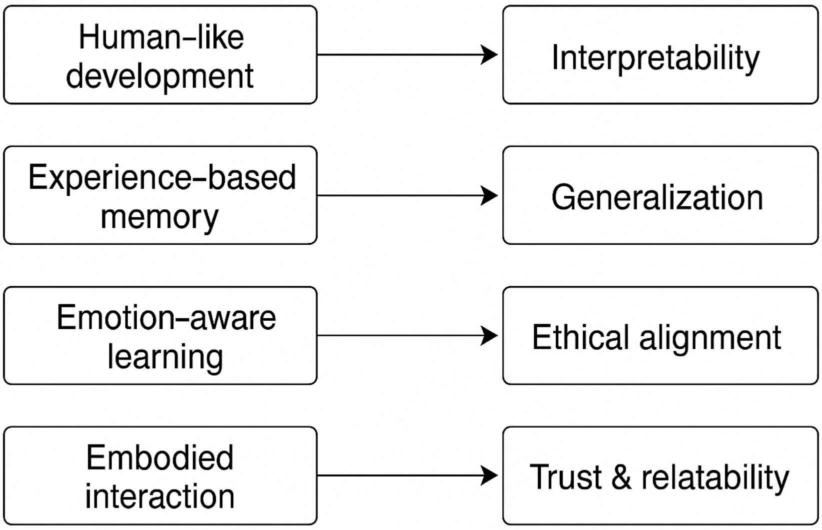

Fig. 3 AHI design principles directly enable key properties required for AGI. By modelling human development, memory, emotion, and embodied behaviour, AHI systems achieve interpretability, generalisation, ethical alignment, and human trust.

7.3 High Resource Requirements

Fully realized AHI systems aim to match the complexity of the human biological and cognitive system. This requires real-time integration and processing of vision, audio, language, emotional states, memory and physical interaction.

This would need significantly higher computational demands, which are efficient, real-time sensory integration systems.

Scaling the AHI over time will demand sophisticated optimization strategies for multi-modal and embodied learning.

7.4 Necessity of Real-time Adaptability

Unlike conventional AI that processes static datasets, AHI must continuously adapt to dynamic, real-time and unpredictable environments. It should learn from each interaction without suffering from catastrophic forgetting. It should retain long-term context-rich memories, enabling it to evolve meaningfully over time.

8 Conclusion

To advance the vision of AHI and validate its foundational principles in practice, several critical next steps are necessary:

8.1 Develop Open AHI Benchmarks

There is a pressing need to develop benchmarks specifically tailored to AHI- measuring not just task performance but developmental learning, emotional understanding, imitation, and contextual adaptability.

These benchmarks should be designed to reflect human developmental milestones rather than solely on static evaluation metrics.

8.2 AHI Specific Datasets

Most existing datasets are highly task-specific and lack grounding in authentic human interaction. Although AHI systems can learn from real-time behavior, curated datasets capturing naturalistic human behaviour, emotions, social interactions with learning trajectories are essential to accelerate development. These datasets should support incremental learning and include multi-modal streams that reflect realistic environments- combining vision, audio, emotion, and context included data.

These datasets would act as a foundation for training and evaluating AHI systems.

8.3 Prototype Foundational AHI systems

Developing foundational AHI prototypes will be essential for validating the theoretical principles discussed in this paper.

Initial systems should begin as embodied agents capable of perceiving and interacting with the world, gradually developing adaptive and socially aware behaviors.

These prototypes should support continuous learning and be architected for scalability and long-term evolution. Such prototypes will demonstrate the feasibility of treating AI as a continuously learning entity- paving the way toward truly human-like general intelligence.

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