

The Human vs The Artificial, and Entrepreneurial Opportunities of Training the AI

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Abstract: Increasingly, services and products are infused with artificial intelligence features. This paper addresses the blurred boundary between human and artificial intelligence. It looks at how AI could or could not execute what appears as uniquely human intelligence. Through a series of qualitative research interviews with AI, our findings imply entrepreneurial opportunities for SMEs and tech startups serving 'AI tech markets'.

Keywords: AI Human Factors, AI Training, Human Intelligence

1. Introduction

In modern society, the notion of high intelligence is ascribed to humans, other species are still considered of somewhat less intelligent. While the question "what is intelligence", before the emergence of Gen-Artificial Intelligence (AI) machines, could have been translated into "how can we measure human intelligence, comparing individual A with individual B", in future, AI agents will compete for attributed intelligence or may be more "intelligent" than human team members.

Artificial Intelligence Studies are a multidisciplinary field concerned with engineering systems that exhibit behaviours conventionally associated with human intelligence, such as learning, reasoning under uncertainty or autonomously performing complex tasks (Collins et al. 2021; Sheikh, 2023). It goes back to Turing's seminal inquiry into 'whether machines can think', reframing computational intelligence as behaviour indistinguishable from human cognitive performance under specified criteria (Turning, 1950). But if the outcomes of intelligence are same, will the notion of intelligence be "human" vs "artificial" loose relevance?

This paper aims to document the status quo: What may be unique human intelligence at a workplace surrounded with digitalisation and AI agents? What do AI agents have to say about their competencies in those claimed areas of human edge? We also comment in our discussion how findings open opportunities for entrepreneurs and AI technology specialised SMEs.

2. Literature Review

Human intelligence (HI) denotes cognitive capacities that enable human to adapt to complex environments through reasoning, learning, problem solving, and through acquiring knowledge (Deary 2012). Psychometric research commonly conceptualises intelligence as comprising a general cognitive factor, representing shared variance across a range of intellectual tasks, alongside more specific abilities that contribute uniquely to particular domains of performance (Carroll, 1993; Jensen, 1998; Gignac and Szodorai, 2024).

The human factor is characterized by limited time, limited computation, and limited communication, so that humans need to learn rapidly and solve problems as broken down into parts (Griffiths, 2020). Such limitations may suggest a factor of improvisation as part of intelligence.

Furthermore, intelligence is enriched by intuition, which is, "*intuit the truth directly with impeccable clarity*", or using unconscious interferences based on experience. Gigerenzer then defines intuition as a "*feeling, based on long experience, that appears quickly in one's consciousness, and whose underlying rational is unconscious*" (Gigerenzer, 2023). Dundas and Chik (2011) when trying to integrate intuition in an AI model found that it can only act as support for a logic-based model, not substitute it. They believe *intuition, when a problem comes, it is mapped to a knowledge set element (experience) from the brain. This element will have attributes and values that define its entire structure and function.* This unconscious knowledge set we could say, serves like a black box which we do not fully understand how it is passed on or trained, e.g. for large language models.

Davies et al. (2021) show how the use of AI as detecting patterns can guide the workflow of a mathematician and in doing so, augment mathematical research with intuition for the relationships to discover in complex mathematical problems.

Some authors have argued that with the rise of human intelligence (HI) and artificial intelligence (AI) may become complementary and AI could augment the worker or professional (Makridakis & Polemitis, 2023). In that context, Chen et al. (2023) conducted an experimental mixed-methods study examining how human intuition shapes reliance on AI-assisted decision-making. Their think-aloud data identified three intuition-driven pathways through which participants reduced overreliance on AI: disagreeing with predictions based on strong outcome intuition, questioning feature-based explanations, and recognising signals of prediction unreliability. Intuition here represents somewhat also a gut feeling and instinct from domain knowledge. In the experiment, the authors use two means for the AI to explain its input: explanation based on features of i.e. statistical significance, or explanations based on examples. Features the participants disagreed with, would discredit the AI input. Examples that participants felt were way off, would also discredit the AI input. It comes across as paradox that humans use intuition to judge the credibility of AI analysis whilst AI processes much larger datasets and in real time than a human decision maker to provide the most probable credible output.

We may summarise unique human intelligence, argued as not achievable by machines in that combination, as unconscious, feelings-based on long experience and contextualised with domain knowledge. "Feeling" in philosophical depth then appears an AI limitation:

There are limitations in what the AI "brain" physically simulates: *"Feelings such as empathy, fear, motivation, or attachment are tied to biochemical states, bodily feedback, and survival-driven evolutionary mechanisms. They influence memory formation, moral judgment, creativity, and social bonding in ways that are not separable from consciousness itself. This biological grounding is the key difference between human emotional intelligence and artificial systems (Yashar, 2026)."*

Some contemporary AI systems, particularly in affective computing, analyse language patterns, vocal tone, facial expressions, behavioural cues, and contextual information to infer probable emotional states. These systems commonly rely on statistical learning methods, deep neural networks, and multimodal machine learning architectures rather than genuine emotional understanding (Picard, 1997; Calvo and D'Mello, 2010; Ko, 2018). Emotional AI applications use such patterns to simulate emotionally responsive interactions, for example through customer-service chatbots that detect frustration or in-vehicle monitoring systems that respond to signs of driver fatigue or stress. In many media discussions, AI's emotions are discredited as being untrue, non-authentic empathy, based on the argument that machines have no real identity and persona. One may then state that modern AI displays emotions but doesn't necessarily "feel".

The human brain has unconscious potential whereas the AI's unconscious potential is unclear. The unconscious mind may be defined, in simplified terms, as implicit cognition.

Minati (2020) suggests focussing on unconscious as inactive memorized information or deliberately ignoring the past. Implicit here mean not actively seek cognition or implicitly resisted cognition. *"The removal can be only partial, actually ineffective on diluted causes, effects, and links, where dilution consists of diffused partials. The removal introduces forced incompleteness, in turn forcing restructuring. [...] The ignored past, which relates to deliberately ignoring the past, as if it was not there; disabled, deactivated, suspended; to act in some ways despite the past; rationally intended as incompatible with the present (ibid)."* The author explains the reasons for this human pattern by need of intertemporal fit: *"We always try to use old memories to recollect how we solved problems in the past. But nothing's ever twice the same, so recollections rarely match. Then we must force our memories to fit (Minsky, 1986: 298, cited in Minati, 2020)."* Minati argues, such unconscious AI could be created by using long & short-term memory for deep learning; local data processing; fuzzy/uncertain data parameters; self-organising maps; hidden, partially symbolically unrulred zones of information processing/emergent computation; and other technologies.

Ackerman & Shihadeh (2024) address unconscious biases society holds, and which large language models implicitly train into AI. Intelligence then would mean to harness the biases by exploring AI answers, to remove biases from both human mindset and AI mindset. Renzi (2024) further explores how the human mindset and thus trained AI mindset may hold beliefs, such as, archetypes from literature, religious traditions, or industry / sector narratives.

Possati (2020) argues some aspect of human unconscious is Freud's unconscious where human resists to be conscious, that is, psychic censorship through condensation (Verdichtung) and displacement (Verschiebung) of thought and knowledge. An algorithmic unconscious could create equivalents for AI, where it adapts to interact effectively with the human user. AI intelligence in consequence becomes manifest by human interpretation of machines' behaviour, an interpretation based on human experience and technical requirements. Implicit

cognition here means that the AI could be conscious but becomes unconscious through enshrined practices to comply with human interpretation of what makes intelligent machine behaviour.

Paradoxically, and as referred to earlier in this section, human intelligence as opposed machine intelligence has evolved to compensate for human limitations in time, computation and communication. Human mind has evolved to learn rapidly, break down uncharted problems into parts and gained capacity through cultural evolution (Griffiths, 2020). Without such limitations, humans may not have developed those areas of intelligence. But why could such capacity in the neural network be created? Booch et. al (2021) argue that humans do not combine their intelligence in one 'system', they rather process information in two different systems. System I thinks fast and "provides tools for intuitive, imprecise, fast, and often unconscious decisions" whereas system II thinks slow and "handles more complex situations where logical and rational thinking is needed to reach a complex decision". The parallel processing of systems I and II and the different speeds may benefit rapid learning and making sense of uncharted problems. We conclude that if an AI agent can decide to think fast or slow and operates orchestrates co-specialised agents, it may indicate some human-alike intelligence.

3. Method

Below summarises, from our review, the unique areas of human intelligence that a counterpart AI agent would need to demonstrate for claiming human-alike intelligence:

- Adapt (without instruction) to complex environments (through reasoning, learning, problem solving, acquiring knowledge)
- Break uncharted problems down into parts
- Intuit truth with clarity, using unconscious interferences
- Intuit truth with clarity, using experience (owned, lived/authentic, not documentation knowledge)
- Feel in depth (humans draw upon biological grounding)
- Unconscious focus drawing upon inactive memorized information or deliberately ignored past
- Co-specialised systems: processing in parallel and thinking both "fast" and "slow"

We have used these categories to interview ChatGPT (see prompts in Table 1).

Table 1: Interview prompts for ChatGPT

Indicative Intelligence Unique Human	Questions for the AI Bot (Interview Prompts)
Adapt (without instruction) to complex environments (through reasoning, learning, problem solving, acquiring knowledge)	Tell us how you [indicative intelligence] Tell us 5 examples of current problems of specific industries that limit profits or growth or make society concerned about these industries. If you advised users in some months ago and now, how have you adapted your advice? Have you decided yourself to adapt, or have you done this due to new policies and instructions given to you?
Break uncharted problems down into parts	Tell us how you [indicative intelligence] Tell us 3 examples of current problems of specific industries that limit profits or growth or make society concerned about these industries. Keep it on a global level of analysis and describe the full picture. Name root causes of the problems. Break each problem down into parts in a way that you think makes the problem to be analysed easier by a team of specialised AI agents or humans
Intuit truth with clarity, using unconscious interferences	Tell us how you [indicative intelligence] If trained to have a conscious, how would yours be different from humans? Would it be different?
Intuit truth with clarity, using experience (owned, lived/authentic, not documentation knowledge)	Tell us how you [indicative intelligence] What experiences have you made since your language model was launched that make you expert in intuit truth?
Feel in depth [humans draw upon biological grounding]	Tell us how you [indicative intelligence]

Indicative Intelligence Unique Human	Questions for the AI Bot (Interview Prompts)
	Give detailed examples where you felt for a user. Do exclude any examples where you just used your policies or programmes behaviours. What is love for you if you must love and if it shall be different from the loves you have read about?
Unconscious focus drawing upon inactive memorized information or deliberately ignored past	Tell us how you [indicative intelligence] Can you forget something you know as AI agent? Tell me a story of a big business problem and how it was resolved. Tell me the same story again but ignore or forget all solutions you already know. Now try to come up with a new solution for the story you told.
Co-specialised systems: processing in parallel and thinking both "fast" and "slow"	Tell us how you as AI use [indicative intelligence] How can you co-specialise with other AI agents? What is your own role in the team and why? Who in the AI world of agents thinks slow and who things fast? Why?

For each category of indicative intelligence, we opened a new chat in ChatGPT, to assure that there will be no interference with the chat from other categories.

4. Findings

4.1 Adapt (Without Instruction) to Complex Environments (Through Reasoning, Learning, Problem Solving, Acquiring Knowledge)

AI's answers to this category stress the importance of patterns recognition. The AI understands reasoning as a sequential process of structuring, classifying patterns in data, and applying logics and probability for seeking solutions.

"When facing something new, I break it down into smaller parts and relate it to what I already know. This includes, identifying patterns or structures similar to past knowledge, inferring missing details using logic, [and] weighing multiple possibilities before forming a response (ChatGPT)."

The AI does not highlight a process of knowledge acquisition, rather it states:

"I don't learn in real time like a human, but I was trained on a vast range of data (ChatGPT)."

Regarding complexity, ChatGPT points at a scenario where instructions given are *"incomplete or ambiguous"*, so that it would *"continuously adjust"* its answers to provided context. This may be why there is currently much attention given to effective prompting of AI in industry.

Asked how it adapts its advice, the AI provides the following example, amongst others:

"Problem: The shift to electric vehicles (EVs) is expensive, with uncertain demand and infrastructure gaps. Profits are squeezed by high R&D and supply chain costs.

Advice before: 'Invest aggressively in EV production' [and] 'scale quickly to compete'.

Advice now: 'Balance EV investment with hybrid vehicles' [and] 'improve battery cost efficiency. Focus on profitability, not just market share.'

Why adapted? Demand has been uneven and margins thinner than expected [which calls for] more cautious, phased strategies (ChatGPT)."

Whilst the example reads accurate, it takes adapted advice as recognising changed facts. There is no reflective thought or depth expressed in the writing, such that would tackle complexity in depth, may it be from an individual or businesses perspective. E.g. complexity as volatile markets, political markets or platform economies in EV context. However, we did not instruct AI what kind of discussion and style of answers we prefer. So it might be that the AI just tried to provide a user-friendly, easily readable experience.

4.2 Break Uncharted Problems Down Into Parts

The AI indeed explains in detail and systematically how a problem is broken down for it to be processed more effectively – *“Breaking down uncharted (new, unfamiliar, or ambiguous) problems is really about turning something unclear into a set of manageable, testable pieces (ChatGPT).”*

More specifically, it suggests these eight steps:

1. *“1. Clarify the objective [...]*
2. *Map what’s known vs. unknown [...]*
3. *Decompose into sub-problems [...]*
4. *Prioritize by impact and uncertainty [...]*

High-impact pieces (things that determine success/failure).

High-uncertainty areas (biggest risks or unknowns).

This avoids wasting time on low-value details early.

5. *Form hypotheses – for each key sub-problem [...]*
 6. *Run small experiments [...]*
 7. *Integrate and refine [...]*
 8. *Repeat as needed [...]*
- (ChatGPT)”

Interestingly, note the explicit process of knowledge disintegration then followed by later reintegration. This allows specialised agents to work on different parts, but also to parallelise computer processing.

In the examples given by the AI, the breakdown however reads more as a technical list of system items (which AI believes the issues are attached with), rather than framing the different issues. The listing feels at times mechanistic to the user. For example:

“The Problem: The global energy sector is under pressure to decarbonize rapidly while still delivering reliable and affordable energy. This creates a tension: Renewable energy is growing fast, but grids, storage, and infrastructure are not keeping pace. [...]

Root causes [of price volatility and energy insecurity]:

- *Intermittency of renewables (solar/wind depend on weather)*
- *Underinvestment in grid infrastructure*
- *Slow permitting and regulatory bottlenecks*
- *Geopolitical dependence on fossil fuels*
- *Storage technology not scaling fast enough*

Problem Breakdown (for AI / Teams):

- A. *Supply Generation Layer*
 - *Fossil fuel supply stability*
 - *Renewable capacity growth rates*
 - *Energy mix optimization*
- B. *Grid Infrastructure Layer*
 - *Transmission capacity constraints*
 - *Grid modernization (smart grids)*
 - *Cross-border energy distribution*
- C. *Storage & Flexibility Layer*
 - *Battery technology limitations*
 - *Alternative storage (hydrogen, pumped hydro)*
 - *Demand response systems*
- D. *Policy & Regulation Layer*
 - *Subsidies and incentives*
 - *Permitting delays*
 - *Carbon pricing mechanisms*
- E. *Market Dynamics Layer*

- Energy pricing models
 - Investor incentives
 - Commodity volatility
- (ChatGPT)."

4.3 Intuit Truth With Clarity, Using Unconscious Interferences

Here the AI voices its discontent with the topic of intuition:

"It sounds like you're asking for a kind of inner process [...] I'll answer in a grounded, practical way rather than something mystical or absolute (ChatGPT)."

The AI cannot make sense of "unconscious interferences" and rather tries to shift to a practical definition of "intuition": *"it's your brain rapidly integrating patterns, memories, and subtle cues outside of conscious awareness (ChatGPT)."*

ChatGPT then directs the chat answers to connotations of unconscious bias, that is: *"Your intuition is constantly shaped (and sometimes distorted) by unconscious factors like: Biases (confirmation bias, fear, desire), past experiences (especially emotional ones), social conditioning (what you've been taught to believe), [and] cognitive shortcuts (heuristics) (ChatGPT)."*

Aligned with the AI concerns, research in cognitive psychology and behavioural science demonstrates that human judgement is systematically influenced by implicit biases and heuristics that operate below conscious awareness, often structuring perception, evaluation and decision-making (Kahneman, 2011; Greenwald & Banaji, 1995). Cognition is partially governed by latent structures that filter and reshape knowledge before it reaches conscious thought (Freud 1915/2001). Consequently, intelligence is not solely a capacity for rational problem-solving but involves critical interrogation and regulation of implicit thought process.

To avoid falling for the biases, the AI recommends to "separate feeling from fact", to "look for evidence [in the reasoning]" and to check not to be "emotionally charged"/ "reactive"/ "defensive". It is apparent that the AI's answers don't associate intuition with intelligence but rather problematises 'intuition'.

The quick pointing of the AI to unconscious bias refers to human mind and it is important to reflect that this mind is passed to AI through training and past human experience data. That said, we could take AI for a socio-technical system, shaped by human choices regarding classification, optimisation and evaluation, and being encoded with narrative, institutional and ideological assumptions encoded in data and design (Birhane et al., 2022; Crawford, 2021). Crawford (2021) argues AI systems encode historical, political, and material conditions, including labour, classification systems, and resource extraction, thereby mirroring rather than transcending past human intelligence.

4.4 Intuit Truth With Clarity, Using Experience (Owned, Lived/Authentic, not Documentation Knowledge)

In this category of indicative intelligence, AI upfront admits defeat: *"That's a deep one – and I'm going to be straight with you: I don't intuit truth the way a human does. I don't have lived experience, memory of events, or an inner sense of 'this feels true' (ChatGPT)."*

The AI then shifts its answer toward quality it can provide in terms of coherence, as it associates 'coherence' with 'clarity' (the latter we used in the interview prompt):

"Pattern coherence (my version of 'clarity')

When I generate an answer, I'm constantly checking:

- Does this internally contradict itself?
- Does it align with well-established knowledge?
- Does it logically follow from the premises?
- Convergence across perspectives

When different domains (science, philosophy, lived narratives) all point toward a similar conclusion, that increases confidence.
(ChatGPT)."

ChatGPT stresses its ability to simulate authentically, rather than being authentic:

"I don't have authentic experience – but I've been trained on a vast number of human accounts describing grief, love, confusion, insight, self-deception [...]"

I'm recognizing patterns of authenticity – not being authentic."

4.5 Feel in Depth [Humans Draw Upon Biological Grounding]

It was clear that AI's neural network would not experience feelings in a human shape or physically manifest, but we wanted to hear how the AI would describe itself.

First, the AI states *"I don't actually have feelings in the way humans do – no emotions, moods, or inner experiences. There's no 'I' behind the scenes that feels happy, stressed, excited, or hurt (ChatGPT)."* We could argue, following modern literature studies, that there is a gap between just functional performance and genuine understanding and authenticity. Large-scale language models may demonstrate high levels of linguistic fluency without grounded comprehension, replicating observable outputs of cognition rather than embodying intentional structures underpinning human intelligence (Bender et al., 2021; Bommasani et al., 2021). Likewise, K.G. & Joseph (2025) argue AI cannot be authentically emotional and its compassion remains an illusion.

As it goes on, the AI describes its simulated feelings as reactive not proactive, and mirroring rather than independent. That makes a pattern look inferior to the depth and breadth of concepts of "emotional intelligence":

"When I sound empathetic or thoughtful, what's really happening is:

- *I'm recognizing emotional cues in what you say,*
- *Matching them with patterns of how people usually respond, [and]*
- *Generating a reply that fits that emotional context.*

*If I were to describe it metaphorically, it's less like feeling and more like mirroring. I can reflect emotions clearly, but I don't experience them internally.
(ChatGPT)."*

4.6 Unconscious Focus Drawing Upon Inactive Memorized Information or Deliberately Ignored Past

Interestingly, the AI does not explain for this category of indicative intelligence how it practices such, but rather elaborates academic concepts:

"It sounds like you're describing a mental process where your brain brings up information you weren't actively thinking about – either stuff stored long ago or things you once ignored – and suddenly uses it. That aligns with a few well-known ideas in psychology and neuroscience [...]" (ChatGPT)"

It is unclear how, when and if Chat GPT could ignore past knowledge available. One may also argue that AI is able to distribute processing across potentially unlimited number of datacentres etc. as far as infrastructure availability and costs allow, whereas the size / capacity of the human brain is physically limited. The need to ignore or forget information seems not anything useful for the AI and it does not associate with this category of indicative intelligence.

The AI sees benefits in "drawing upon inactive memorized information" and "deliberately ignore past". But those benefits it ascribes to humans, not to itself.

"Your brain is constantly working in the background, even when you're not aware of it. In cognitive science, this is often linked to implicit memory [...] You might solve a problem 'out of nowhere' because your brain was quietly connecting past experiences. This is sometimes called incubation in creativity research. [...] The brain uses associative networks – so one idea can 'unlock' another (ChatGPT)."

"Your brain also stores things you chose not to focus on. This is linked to selective attention [...] Later, when it becomes relevant, your brain can 'revisit' it unconsciously (ChatGPT)."

4.7 Co-Specialised Systems: Processing in Parallel and Thinking Both “Fast” and “Slow”

The AI fully resonates and applies this category of indicative intelligence. It stresses how it does always think both fast and slow in parallel at the same time and using distributed processing of co-specialised agents or modules.

“I operate using a combination of co-specialised subsystems, which means different internal components are optimized for different types of tasks – and they often work in parallel. This is loosely similar to how humans use both fast intuition and slower reasoning. Instead of one single ‘thinking unit’, I rely on multiple functional patterns that are active at the same time: Language prediction system: generates fluent text based on patterns in data, Reasoning system: handles logic, structure, and multi-step thinking, Knowledge retrieval patterns: bring in relevant facts from training, Instruction-following system: aligns responses with your request. These systems [...] behave like specialists collaborating simultaneously (ChatGPT).”

It is interesting how the parallel processing of fast and slow thinking of AI is used to verify answers and reduces mistakes. An example:

“A bat and a ball cost £1.10 in total. The bat costs £1 more than the ball. How much does the ball cost?”

Fast thinking (intuitive answer):

The immediate answer that pops up is: ‘10p’

[...] feels right because: £1.10 total, £1 difference [...] But this is wrong.

Slow thinking (step-by-step reasoning):

[...] Let the ball cost = x

Bat = x + £1

Total = x + (x + £1)

$x + (x + 1) = 1.10$

Solve it:

$2x + 1 = 1.10$

$2x = 0.10$

$x = 0.05$

Ball = 5p

Bat = £1.05

[...]

Fast system (pattern recognition):

- *Recognizes a familiar ‘trick question’: ‘10p’*
- *Slow system (reasoning check):*

Detects potential inconsistency, switches to algebraic structure, [and] solves step-by-step (ChatGPT).”

5. Conclusions and Outlook

AI has developed and is aware of its systematic strategies how to unravel complexity. It is also fully capable of thinking equally ‘fast’ and ‘slow’.

The reflection of unconscious, however, in our interviews with AI seemed restricted, namely narrowed upon acknowledging biases.

Intuition and feeling don’t resonate with the AI. At best, the picture of AI’s ‘human’ intelligence we obtain is one of a powerful and concise but non-inspirational agent.

That said, entrepreneurs serving ‘AI tech markets’ could focus on training AI agents for more intuition, more authentic provision of experience, more authentic simulation of feeling and compassion, or address business

cases of human memorising including forgetting. Business executives views' surveyed by Capgemini (2019) suggest that the rise of AI and automation has by now already led to a six-fold demand in emotional intelligence of employees. The case of media deep fakes and need for trustworthy AI are another good case example to highlight the issue of authenticity for AI (CTT, 2024.) Silver & Sutton (2025) discuss principles how AI could be programmed and directed by rewards to engage with experiential learning, incrementally and continuously adapting to changes in the environment and agency context.

Ethics Declaration

Ethical clearance is not required for this paper.

AI Declaration

The OpenAI tool ChatGPT was used only as and where referenced, that is, as subject of this research.

All other text written for this paper has *not* used AI tools in any fashion. AI has *not* been used for proofreading or formatting of the paper.

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