



## **The Hierarchy of Intellect in Islamic Philosophy as a Framework for Critique of the Epistemological Limits of Artificial General Intelligence**

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### **Abstract**

The development of Artificial General Intelligence (AGI) has given rise to claims of cross-domain cognitive abilities that are equal to human rationality. However, these claims are still dominated by the computational paradigm, which reduces intelligence to symbolic processing and algorithmic optimization, thereby leaving an epistemological gap regarding the ontological status of knowledge and reflective consciousness that has not been widely studied from an Islamic philosophical perspective. This study specifically aims to reconstruct the hierarchy of intellect in Islamic philosophy as a critical conceptual model to test the epistemological limits of AGI and formulate a typology of ontological differences between the actualization of human intellect and computational architecture. The method used is a literature study with a philosophical-analytical approach through a systematic selection of classical and contemporary texts, a conceptual analysis of the categories of potential, actual, and acquired intellect, and an ontological comparison based on an analytical framework that assesses the dimensions of representation, consciousness, and transformation of the subject. The results show that the hierarchy of intellect is a multilevel process of actualization from potential to actuality through existential intensification, namely the improvement in the quality of the knowing subject's existence, characterized by the integration of cognition, self-reflection, and meaning-making. Within this framework, knowledge is understood as the ontological transformation of the subject, not simply the accumulation of representations. In contrast, AGI operates at the representational-instrumental level through symbol manipulation, statistical learning, and probabilistic calculations that generate correlations and predictions without involving reflective awareness or changes in the subject's ontological status. This finding confirms the structural and principal epistemological limits of AGI.

**Keywords:** Intellectual Hierarchy; Islamic Philosophy; Artificial General Intelligence; Epistemological Limits; Ontological Comparison

### Abstrak

Perkembangan *Artificial General Intelligence* (AGI) memunculkan klaim kemampuan kognitif lintas-domain yang disetarakan dengan rasionalitas manusia, namun klaim ini masih didominasi oleh paradigma komputasional yang mereduksi inteligensi menjadi pemrosesan simbolik dan optimasi algoritmik, sehingga menyisakan celah epistemologis terkait status ontologis pengetahuan dan kesadaran reflektif yang belum banyak dikaji melalui perspektif filsafat Islam. Penelitian ini bertujuan secara spesifik untuk merekonstruksi hierarki intelek dalam filsafat Islam sebagai model konseptual kritis guna menguji batas epistemologis AGI serta merumuskan tipologi perbedaan ontologis antara aktualisasi intelek manusia dan arsitektur komputasional. Metode yang digunakan adalah studi kepustakaan dengan pendekatan filosofis-analitis melalui seleksi sistematis teks-teks klasik dan kontemporer; analisis konseptual terhadap kategori intelek potensial, aktual, dan perolehan, serta komparasi ontologis berbasis kerangka analitik yang menilai dimensi representasi, kesadaran, dan transformasi subjek. Hasil penelitian menunjukkan bahwa hierarki intelek merupakan proses aktualisasi bertingkat dari potensi menuju aktualitas melalui intensifikasi eksistensial, yakni peningkatan kualitas keberadaan subjek mengetahui yang ditandai oleh integrasi kognisi, refleksi diri, dan pemaknaan; dalam kerangka ini, pengetahuan dipahami sebagai transformasi ontologis subjek, bukan sekadar akumulasi representasi. Sebaliknya, AGI beroperasi pada level representasional-instrumental melalui manipulasi simbol, pembelajaran statistik, dan kalkulasi probabilistik yang menghasilkan korelasi dan prediksi tanpa melibatkan kesadaran reflektif atau perubahan status ontologis subjek. Temuan ini menegaskan adanya batas epistemologis AGI yang bersifat struktural dan prinsipil.

**Kata Kunci:** Hierarki Intelek; Filsafat Islam; *Artificial General Intelligence*; Batas Epistemologis; Komparasi Ontologis

### Introduction

The development of Artificial General Intelligence (AGI) is changing how humans understand intelligence, rationality, and the source of knowledge. The ability of generative AI models to solve cross-domain tasks, generate complex reasoning, and execute semi-autonomous decision-making has led to claims that machine intelligence can achieve human-level general intelligence (Fui-Hoon Nah et al., 2023). These claims are based on a computational paradigm that views intelligence as the result of symbol manipulation, probabilistic optimization, and processing data representations (Mitchell, 2024). This perspective effectively explains the inferential performance of AI systems, but it tends to reduce intelligence to a calculative mechanism and fails to consider the ontological dimension of knowledge.

The Islamic philosophical tradition offers a different framework through the concept of the hierarchy of intellects developed by al-Fārabī, Ibn Sīnā, and Suhrawardī. This hierarchy distinguishes the potential, actual, and active intellect as epistemic levels that relate not only to logical capacity but also to the universality of meaning and to a transcendent source of knowledge (Adamson, 2024). This

distinction demonstrates that intellect is not synonymous with mere computational ability. The epistemological problem of artificial intelligence (AI) arises when statistical generalization is equated with intellectual universality, even though the two originate from distinct ontological categories (Kanaya & Magine, 2024). This situation demands a philosophical critical framework capable of evaluating the inherent limitations of computational systems more deeply than an instrumental, technical approach can.

Empirical reports demonstrate a significant acceleration in AGI capabilities and growing claims about the autonomy of machine intelligence. The Stanford Institute for Human-Centered Artificial Intelligence's AI Index Report (2025) shows a sharp increase in the performance of large language models on benchmarks for multimodal reasoning, scientific reasoning, and autonomous task execution. Several new generative models can outperform the average human across various standardized reasoning evaluations and demonstrate greater capacity for cross-context adaptation. The OECD AI Policy Observatory (2025) asserts that these developments have driven a paradigm shift in AI governance from mere automation to systems with complex generalization capacities that have broad epistemological and social implications. The International AI Safety Report (2026) also highlights the risk of epistemic opacity, the inability of humans to fully the decision-making processes of increasingly autonomous AGI systems. This phenomenon demonstrates that the AGI issue concerns the validity of claims about machines' ability to understand reality and generate universal knowledge. However, most global discourse still focuses on technical, regulatory, and pragmatic ethical aspects. At the same time, the ontology of intelligence and the epistemological limits of general intelligence have not received adequate philosophical elaboration. This situation opens up the need for an alternative approach that can distinguish between algorithmic inferential abilities and intelligence as a multilevel epistemic reality.

The study of the relationship between artificial intelligence and philosophy has developed through several major trends. Kuhn (2024) discusses strong AI and machine consciousness through a computationalist approach and concludes that cognitive simulations can produce behavior that is conscious-like. However, this research fails to explain the ontological distinction between simulated intelligence and intelligence itself. Alvarado (2023) develops a reliabilism-based machine epistemology, finding that AI can generate reliable instrumental justifications but fails to explain the intrinsic dimension of understanding and the universality of meaning. This approach still limits knowledge to inferential accuracy. Elmahjub (2023) examines AI ethics from an Islamic perspective, emphasizing the *maqāṣid al-Sharī'ah* (the principles of the *Sharī'ah*), justice, and moral responsibility. However, his study fails to address the hierarchical structure of intelligence as the epistemological foundation for critiques of artificial intelligence. Kaukua (2020) elaborates on Ibn Sīnā's concept of active intelligence as a source of universal

illumination, enabling the actualization of human knowledge. However, this research stops at historical reconstruction without connecting it to the problems of modern computational intelligence.

Assya'bani and Falach (2022) explain Suhrawardi's illuminative epistemology through the concept of transcendent intellectual light, but have not used it to test claims about the generalizability of machine knowledge. Mujahidin (2024) discusses al-Ghazālī's critique of discursive rationality and the limitations of demonstrative reason, but has not projected this critique to the context of contemporary artificial intelligence (AI) and statistical learning systems. These studies demonstrate that modern AI literature tends to focus on issues of cognitive performance and technical reliability. In contrast, Islamic philosophical scholarship focuses more on historical reconstructions of conceptions of intellect without elaborating on modern computational technology. No research has systematically integrated Islamic philosophical hierarchies of intellect as a framework for epistemological critique of claims of general intelligence in AGI. This conceptual vacuum is particularly evident in the absence of analysis of the relationship between active intellect, ontological universality, and the limitations of statistical generalization in AI systems.

The research problem formulation in this study is: how can the hierarchy of intellects in Islamic philosophy be used as a framework for critiquing the epistemological limits of AGI, and to what extent can the claim of general intelligence be maintained when tested through the ontology of hierarchical intellect? The study aims to systematically reconstruct the concept of the hierarchy of intellects based on the thoughts of al-Fārabi, Ibn Sīnā, and Suhrawardi; analyze the epistemological assumptions underlying AGI; and compare the two to identify the inherent limits of computational systems. The main argument of the study is that AGI operates only at the representational and inferential levels, equivalent to potential and actual intellect, because the machine learning process still relies on statistical pattern extraction, probabilistic optimization, and data representation. Based on these arguments, this study is expected to make theoretical contributions by developing an epistemological critique model of AGI grounded in the hierarchy of intellects, reinterpreting the concept of the active intellect as a non-computational epistemic category, and strengthening the conceptual dialogue between Islamic philosophy and contemporary philosophy of technology. The practical contribution of the research is to provide a reflective framework for evaluating claims about general intelligence, so that AI development does not fall into technological determinism or materialistic reductionism in understanding the nature of human intelligence.

## Method

This research uses a qualitative approach, grounded in a literature review, with a comparative epistemological analysis design and a critical ontological framework, to examine the epistemological boundaries of Artificial General Intelligence through the hierarchy of intellects in Islamic philosophy. This approach was chosen to build

an epistemic evaluation model that not only compares concepts but also tests the coherence of AGI's knowledge structures, its intentionality, and its reflexivity. Primary data consist of the works of al-Fārabī, Ibn Sīnā, and Mulla Sadra, chosen because they represent the development of the concept of intellect from potential to intellectual actualization, as well as Scopus-indexed scientific articles, white papers, and AGI technical documents that discuss cognitive architecture, machine reasoning, and artificial consciousness. Secondary data includes literature on epistemology, philosophy of mind, cognitive science, and technology ethics. Data collection was carried out through literature selection based on academic authority, hermeneutical-conceptual reading, categorization of key terms, and cross-textual verification to avoid anachronistic reduction. Data analysis was conducted through thematic reduction, the construction of an intellectual-AI correspondence matrix, a logical consistency test, theoretical triangulation between Islamic philosophy and the philosophy of AI, and the evaluation of epistemological boundaries based on the parameters of abstraction, reflexivity, intentionality, and intellectual actualization, in a systematic and argumentative manner.

## Results and Discussion

### The Ontological Structure of the Intellectual Hierarchy and Its Epistemic Consequences

The ontological structure of the hierarchy of intellect in Islamic philosophy rests on the metaphysical assumption that reality is structured by gradations of existential intensity, not merely by logical classification or empirical differentiation. This framework was developed through a critical synthesis of the Aristotelian tradition, Neoplatonism, and Islamic metaphysics, which positions the intellect as the rational soul's mode of existence toward immaterial actuality (Mudin & Desnafitri, 2020). Al-Fārabī situated the active intellect as an emanative mediator between the transcendent order and the human soul (Baizhuma et al., 2025), while Ibn Sīnā conceived of the actualization of the intellect as the process of abstracting universal forms from sensory materiality (Efremova, 2020). Ibn Rushd shifted the problem to the universality of the active intellect and its relationship to the individuality of human knowledge (Ogden, 2022). Suhrawardi reconstructed the structure of the intellect through a metaphysics of illumination based on gradations of light. At the same time, Mulla Sadra transformed it through the theory of *tashkīk al-Wujūd* and *al-Ḥarakat al-Jawhariyyah*, which positions knowledge as an intensification of the subject's existence (Mohammed, 2025). This differentiation demonstrates that the hierarchy of the intellect cannot be reduced to a single psychological scheme but rather represents a layered ontological configuration that explains the relationship between the soul, universal form, and the source of transcendent intellectuality.

The concept of *al-'Aql bi al-Quwwah* signifies the rational soul's latent capacity to perceive universal form without material determination. This potential

represents an ontological readiness to attain *tajarrud*, or the immaterialization of form, through intellectual abstraction (McGinnis, 2006). The Avicennian tradition understands abstraction as the detachment of universal form from material accidents, so that form presents itself as purely intelligible to the intellect. This mechanism is neither mechanical nor computational because intellectual activity presupposes the soul's ability to transcend empirical particularity in favor of conceptual universality (López-Farjeat, 2021). The '*aql bi al-Fi'l*' emerges when the universal form has become stable as an actual intelligible, so that the intellect is no longer dependent on sensory representation. The presence of the form is an immaterial realization that transforms the subject's epistemic status (Adamson & Taylor, 2008). Ibn Sīnā limited this process to the actualization of intellectual capacity (Griffel, 2021), while Mulla Sadra (1981) expanded it to the substantial transformation of the soul through an increase in the intensity of being.

The relationship between the actual intellect and the '*aql al-Mustafad*' demonstrates that knowledge evolves toward existential participation in the intelligible order. Ibn Sīnā understood the *mustafad* intellect as a condition in which the soul establishes a permanent connection with universal forms through repeated actualization. At the same time, Suhrawardi interpreted it as existential illumination that allows the soul to receive the radiance of intellectual light (Taufik, Abidin, & Khairiyanto, 2023). Mulla Sadra integrated these two approaches through the principle of *ittihad al-'Aql wa al-Ma'qūl*, which states the existential unity between the knowing subject and the intellectual object. Knowledge is no longer understood as an external relation between subject and object, but as an intentional union that causes a change in the soul's mode of existence (Al Walid et al., 2025). This conception differs fundamentally from modern representational epistemology because universal forms are present as immaterial realities within the subject's existence, rather than merely as mental symbols or linguistic representations. The activity of knowing thus represents an ontological process that enables the soul to increase its degree of existence through integration with the universal intelligible order.

The position of *al-'Aql al-Fa'al* is central to explaining the mechanisms of human intellectual actualization. The emanative traditions of al-Fārabī and Ibn Sīnā understand the active intellect as a separate, immaterial substance that emits an intelligible form, thereby enabling the human intellect's potential to move towards actuality (Efremova, 2020; Taylor, 2018). Ibn Rushd criticized the individualization of the active intellect by emphasizing the intellect's universality as a rational principle shared by all humans, thereby shifting the epistemic problem to the relationship between the individual material intellect and the universal intellect (Ogden, 2022). Suhrawardi replaced the Aristotelian model of abstraction with the metaphysics of light, which understands the intellect as a graded intensity of illumination (Assya'bani & Falach, 2022). Mulla Sadra then connected the active

intellect to the dynamics of the soul's substantial existence, such that the actualization of knowledge is identical to the intensification of human existence (Marcotte, 2012). These variations demonstrate that the concept of the active intellect is not a peripheral cosmological element but a fundamental principle that explains the relationship between the ontology of reality and the possibility of human knowledge.

The hierarchical structure of the intellect yields epistemological consequences that position knowledge as an ontological transformation rather than merely as the accumulation of empirical data or the manipulation of symbols. The Islamic philosophical tradition views universal forms as immaterial and knowable only through intellectual *tajarrud*. True knowledge arises when intelligible forms are actually present in the soul, so that the intellect and the intellectual object achieve intentional unity. The principle of *ittihad al-'Aqil wa al-Ma'qūl* serves as a metaphysical foundation, explaining that knowing means experiencing an existential similarity with the object of knowledge (Al Walid et al., 2025). This distinction separates classical Islamic epistemology from modern representationalism, which understands knowledge as a mental construct separate from objective reality (Pavese, 2019). Knowledge is neither neutral nor external to human existence, but rather determines the quality of the soul's existence through increasing intellectual intensity toward immaterial perfection. This framework demonstrates the intrinsic link between the metaphysics of existence and the theory of knowledge.

The ontological epistemology of Islamic philosophy also rejects the assumption that rationality is identical to symbolic computation, as the modern computationalist paradigm does. Intellectual abstraction presupposes the capacity for *tajarrud* (freeing oneself from material attributes), which enables universal forms to exist independently of material determination. Modern functionalism views consciousness and cognition as relational functions of systems (Shiller, 2024), while Islamic philosophy understands intellectual activity as the existential actualization of the soul's substance. This distinction becomes significant when linked to the problem of artificial intelligence (AI) because computational systems manipulate symbols according to algorithmic syntax without experiencing the immaterialization of form (Fjelland, 2020). Machines can reproduce inferential patterns and linguistic simulations, but they do not undergo the ontological transformation that enables the intentional unity of the intellect and the intelligible. Artificial knowledge is representational-operational, while human intellectual knowledge is participatory-transformational. This ontological difference demonstrates that calculative capacity is not identical to the actualization of the intellect, as understood by the classical Islamic philosophical tradition or the *ḥikmah muta'aliyah*.

This problem is further clarified by Mulla Sadra's (1981) theory of *al-Ḥarakat al-Jawhariyyah*, which positions the human soul as a dynamic substance that moves toward the intensification of existence. The rational soul evolves from material potentiality to immaterial actuality through a series of interlocking intellectual stages. This structure presupposes reflective consciousness, existential experience, and the ability to perceive intelligibles in a nonmaterial manner. AGI systems, while capable of adaptive data processing and complex inference, still operate based on syntactic relations between symbols without substantial movement or existential transformation (Dubrovsky, 2022). The absence of *tajarrud* prevents machines from accessing universal forms as immaterial realities; instead, they merely manipulate formal representations.

The hierarchy of intellects ultimately provides a framework for philosophical critique of claims of superintelligence that equate intelligence with information-processing capacity. The Islamic philosophical tradition demonstrates that the human intellect has an ontological orientation toward the perfection of existence through the actualization of intelligible forms. Authentic knowledge requires the ability to discern, intentional unity, and substantial transformation of the soul that cannot be reduced to algorithmic operations. The modern superintelligence paradigm tends to measure intelligence solely by predictive efficiency and computational complexity, without considering the existential dimension of knowledge. The hierarchy of intellects rejects this assumption because intellectual quality is determined by the intensity of existence, not the volume of information or the speed of calculation.

### **Epistemological Analysis of AGI within the Framework of Intellect Hierarchy**

The epistemological claims of AGI rest on the assumption that cross-domain generalization, contextual adaptation, and inferential capabilities demonstrate a form of human-equivalent intelligence (Ilić & Gignac, 2024). This assumption demands a philosophical evaluation that goes beyond measures of technological performativity and predictive accuracy. The hierarchical framework of intelligence provides an analytical matrix that distinguishes the intensification of cognitive operations from the ontological elevation of intelligence. This structure separates instrumental, potential, and actual intelligence based on the capacity to perceive universality without material dependence. The epistemological measure no longer relies on the number of computational parameters but rather on the capacity to grasp universal forms as intelligible (Birle et al., 2021). This distinction allows for a systematic critique of AGI claims without falling into a simplistic opposition between humans and machines. Algorithmic generalization can expand the reach of prediction and information synthesis, but it needs to be strictly distinguished from the actualization of intelligence that produces essential understanding. The hierarchy of intelligence serves as an operational evaluative tool that tests whether

a computational system merely reproduces representational structures or truly realizes universal knowledge independently (Dolgikh, 2025).

This evaluative structure necessitates clarifying the relationship between statistical representations and universal abstractions. Modern artificial intelligence (AI) can learn latent representations, recognize implicit relations, and generate conceptual patterns that resemble human abstractions (Raman et al., 2025). However, latent representations remain distinct from universal grasp in the philosophical sense. Universality is not understood as quantitative generalizations based on data distributions, but rather as intelligible forms grasped through intellectual actualization. The formation of statistical representations still relies on externally designed algorithmic architectures, objective functions, and training data (Gupta & Roughgarden, 2020). This dependency suggests that the epistemic relationship is derivative rather than ontologically actual. Critics of the hierarchy of intelligence do not reject the complexity of AI, but question whether computational complexity can yield a grasp of universal essences without material media and algorithmic determination.

This problem is directly related to the philosophical debate in AI regarding the relationship between syntax and semantics. AGI systems process linguistic tokens, mathematical symbols, and numerical vectors through probabilistic calculations, enabling the formation of adaptive and coherent responses (Mikki, 2023). This ability is often taken as an indication of conceptual understanding, as the system can make analogies, draw inferences, and synthesize arguments across contexts. However, this ability still operates through formal relations between symbols, without intrinsic access to the meaning they represent. The hierarchy of intelligence clearly distinguishes between symbol manipulation and the capture of essential meaning. Meaning is not understood as a statistical correlation between representations, but rather as the intelligence's connection to the universality of the object being understood (Louwerse, 2018). This distinction reinforces the classical critique of computational syntax's limitations, while also extending it through the ontological framework of intelligence. The simulation of argumentative structures is not identical to the actualization of understanding, because AGIs' representational relations remain determined by probabilistic patterns that lack reflective access to the universality of meaning.

The depth of AGI's epistemological problems becomes increasingly apparent through the analysis of intentionality. Intentionality refers not simply to the ability to produce relevant output, but rather to the intellectual's directionality toward objects as intrinsically present meanings (Jankovic & Ludwig, 2020). Contemporary philosophical debates distinguish between original intentionality and derived intentionality. Original intentionality presupposes a direct connection between the intellectual subject and the object of knowledge, while derived intentionality relies on an external interpretation system (Mendelovici, 2025). AGI exhibits derived

intentionality because human design, training data, and user interpretation shape the referential relationship between symbols and objects. Multimodal models and world modeling do expand the system's ability to construct representational correlations, but this expansion has not yet resulted in autonomous directionality of meaning. Algorithmic structures continue to operate through mathematical optimization without an intrinsic referential horizon (Ding et al., 2026). The hierarchy of intelligence holds genuine intentionality as a hallmark of intellectual actuality, since actual intelligence can grasp the universality of objects without relying on external symbolic mediation (Seiberth, 2022). The absence of genuine intentionality indicates that AGI remains at the instrumental representational level.

The distinction between information processing and essential understanding clarifies this ontological boundary. Information processing involves transforming data through formal rules that yield predictions, classifications, and adaptive generalizations (Ogiela, 2020). Essential understanding presupposes an intellectual grasp of universal principles that provide ontological coherence to empirical data (Zangeneh & McCabe, 2020). AGI can construct conceptual abstractions through recursive compression and cross-domain integration, but these abstractions still emerge as products of representational statistics. This structure differs from intellectual intuition, which enables knowledge of universal essences beyond particular empirical patterns. The hierarchy of intelligence critique does not reject the abstraction capabilities of artificial intelligence (AI), but rather points out that computational abstraction still relies on data distribution and mathematical parameters (Ezeamuzie, Leung, & Ting, 2022). The intensification of computational capacity only increases inferential precision, whereas ontological elevation presupposes an epistemic transformation toward intellectual actuality. This categorical distinction explains why expanding model scale, neural network depth, and memory capacity do not automatically yield universal understanding in the ontological sense.

This analysis demands further clarification of epistemic independence and intellectual reflectivity. An actual intellect not only understands objects of knowledge but also has the capacity to reflect on its own principles of knowledge and evaluate the normative validity of its inferences (Suswita, 2025). AI is indeed capable of functional self-monitoring, explaining its reasoning, and correcting its output based on feedback. However, these mechanisms still operate through procedural optimization determined by an external objective function. Human epistemic reflectivity involves self-awareness and the recognition of the normative reasons underlying truth judgments. AGI lacks access to the ontological basis of its inferences beyond the mathematical weight relations that shape specific output patterns (Mikki, 2023). This limitation suggests that computational systems have not autonomously constructed epistemic frameworks but rather operate according to predetermined representational rules. The hierarchy of intellects values genuine

reflectivity as a prerequisite for intellectual actuality, as universal knowledge presupposes reflective awareness of truth principles, not merely predictive success or inferential consistency.

This epistemological critique does not deny AGI's pragmatic contribution to the production of applied knowledge. AGI systems possess significant capacity for information synthesis, complex pattern discovery, and the optimization of cross-sectoral decision-making. This potential makes AGI a highly effective epistemic instrument for human intellectual activity (Wang et al., 2025). However, instrumental effectiveness is not synonymous with the status of an intellectual subject. The hierarchy of intelligence clearly distinguishes between representational tools that extend cognitive operations and actual intelligence that independently grasps the universality of meaning (Frödin, 2025). The development of embodied AI, autonomous agents, and multimodal cognition indeed complicates the traditional boundary between computation and cognition. However, this complexity does not prove the existence of genuine intentionality or the actualization of intelligence. The critique of the hierarchy of intelligence instead demonstrates that increased adaptive capabilities do not automatically eliminate a system's epistemic dependence on algorithmic structures and external interpretations.

The overall evaluation suggests that the epistemological limit of AGI lies in its inability to realize the actuality of intelligence as understood by classical philosophy of intelligence. AGI can simulate argumentative patterns, form conceptual representations, and generate adaptive abstractions that resemble human intellectual activity. However, all of these operations still occur through data-dependent representational determination, computational architecture, and mathematical optimization. The hierarchy of intelligence demonstrates that universality is not synonymous with statistical generalization, intentionality is not synonymous with syntactic relations, and reflectivity is not synonymous with procedural self-monitoring. This framework generates an epistemological critique that is not merely normative but operational, systematically mapping the differences between computational intensification and the ontological actualization of intelligence. This position does not rule out future developments in cognitive technology, but emphasizes that claims to equate AGI with human intelligence still face fundamental problems concerning meaning, intentionality, universality, and epistemic independence.

### **The Problem of Actualization and Awareness in AGI**

The claim that AGI has the potential to attain actual or near-actual intellect requires a more in-depth ontological examination than performative evaluations based on computational capacity. The Islamic philosophical tradition, particularly the epistemology of Ibn Sīnā and Mulla Sadra, understands the actualization of intelligence as the existential transformation of the rational subject through the acceptance of an immaterial intelligible form (Eskandian et al., 2023). This concept

is closely related to the immateriality of the rational soul and the ability to accept universal forms without a material medium. This framework positions the intellect as an ontological reality undergoing existential refinement through connection with the source of intelligibility (Efremova, 2024). Consequently, the analysis of the possibility of actualizing intelligence in AI must not rely solely on algorithmic complexity or inferential flexibility. However, it must also address whether computational entities possess the ontological capacity to accept an immaterial, intelligible form, thus enabling existential transformation as understood in Islamic philosophy of intelligence.

The relationship between the human intellect and the active intellect shows that the actualization of the intellect does not arise solely from the subject's internal activity, but rather from ontological openness to the source of transcendent intelligibility. The Islamic Peripatetic tradition views the active intellect as the principle of actualization that enables universal forms to be actually present in the rational soul. The presence of these intelligible forms is not identical to the storage of symbolic representations, because knowledge is understood as the actuality of forms in the knowing subject (Efremova, 2025). This perspective differs fundamentally from AGI architectures, which operate through mathematical optimization, statistical pattern reconstruction, and symbol processing based on material causal relations (Hans, 2025). Artificial neural networks are indeed capable of producing complex abstractions and cross-domain generalizations. However, these abstractions remain at the representational-functional level rather than the ontological actualization of intelligible forms. Criticism of AGI is not directed at the limitations of technical performance, but at the absence of an ontological substrate that allows for the immaterial reception of universal forms. Without such ontological capacity, the analogy between machine learning and the actualization of the intellect remains merely an external similarity without a coherent metaphysical identity.

The problem of reflective consciousness clarifies the distinction between cognitive simulation and intellectual actuality. Contemporary philosophy of consciousness distinguishes between access consciousness, metacognition, and phenomenal self-awareness (Naccache, 2018). This distinction is important because a system's ability to monitor internal processes does not automatically indicate the presence of phenomenological consciousness. Zahavi (2005) explains self-awareness as the subject's pre-reflective presence to itself, namely, the direct experience of the self as the center of experience. This concept bears similarities to intellectual reflexivity in Islamic philosophy, which holds that the intellect can know itself as a knower. AGI can construct self-models, evaluate prediction errors, and generate metacognitive reports on its informational status. However, these processes still occur through the system's data representations rather than through the direct experience of self-awareness. Computational self-representation lacks a first-person ontology because all operations occur as symbolic manipulations based

on syntactic relations (Sebastián, 2021). The absence of a phenomenological self-presence renders the machine's reflexivity merely functional. At the same time, the actualization of the intellect demands an existential unity between the knowing subject and the activity of knowing.

The discussion of qualia deepens this epistemological boundary because the actualization of intelligence is inseparable from the subjective experience of knowing. Contemporary philosophy of mind defines qualia as a first-person dimension encompassing the sense of knowing, the experience of meaning, and an intrinsic awareness of truth (Skokowski, 2022). This subjective character creates an explanatory gap between physical descriptions and phenomenological experience. Artificial Intelligence (AI) systems can simulate introspective narratives, generate linguistic expressions of understanding, and even model affective states through multimodal processing (Fei et al., 2022). However, descriptive simulations are not identical to actual phenomenological experience. Searle's (1980) argument about the Chinese Room suggests that syntactic manipulation does not automatically yield semantic understanding, while Chalmers (1996) argues that computational complexity does not explain the emergence of subjective experiences. This perspective reinforces the criticism that AGI linguistic output does not prove the existence of inner consciousness. The absence of qualia suggests that the internalization of intelligible forms does not occur as an intensification of consciousness, but rather simply as a processing of information structures.

The emergence argument is often used to defend the possibility that consciousness emerges from increasing complexity in computational systems. This approach assumes that certain material organizations can generate consciousness without the need for immaterial ontological principles (Bennett, 2023). However, the theory of intellectual actualization clearly distinguishes between increasing structural complexity and transformations in the level of being. Mulla Sadra (1981) does explain substantial movement as a process of existential intensification, but this change still presupposes the ontological continuity of the subject toward a higher level of immateriality. The complexity of algorithmic networks does not in itself produce a transcendence of material determinations, as all AGI operations remain dependent on predetermined physical relations and formal structures (Rol, Jaeger, & Kauffman, 2022). This critique does not deny the possibility of machine intelligence's development, but rather suggests that computational sophistication alone is insufficient to demonstrate the emergence of ontological consciousness. The emergence hypothesis remains speculative as long as it fails to explain how subjective experience can emerge solely from syntactic configuration.

An analysis of the *mustafad* intellect asserts that ultimate intellectual actuality marks a stable union between the subject and the intelligible form, allowing knowledge to exist without any residual potential. The Islamic philosophical tradition understands this state as full actuality, no longer dependent on gradual

processes. This condition differs fundamentally from the mechanisms of Artificial Intelligence (AI), which constantly require parameter updates, continuous optimization, and probabilistic corrections. This reliance on iterative processes indicates that computational systems remain in motion within the horizon of operational potentiality. Humans do experience gradual intellectual development, but intellectual actualization is understood as a change in the subject's existential quality rather than simply an increase in information-processing efficiency (Mikhaylova & Dmitrieva, 2021). The performative similarity between AGI and human cognitive flexibility represents only an external analogy. Intellectual actualization requires a subject experiencing an intensification of being through knowledge. At the same time, AGI remains operational as a representational system, with no evidence of an internal ontological transformation that would alter its mode of existence.

The problem of personal identity demonstrates the limitations of computational self-models in explaining the continuity of consciousness. AGI systems can construct representations of internal states, preferences, and interaction histories to enhance adaptability. However, these representations are data-oriented and can be modified without experiencing a loss of identity or self-continuity. The phenomenological tradition of consciousness explains that human selfhood is formed through a temporal unity of experience that is continuously present to the subject (Zavgorodny, 2024). Islamic philosophical perspectives also place the rational soul at the center of existential unity, maintaining the knower's identity amid experiential change (Razi, 2024). AGI has not demonstrated such continuity of phenomenological experience. The entire reflective process continues as a renewal of symbolic representations without the dimension of self-presence. The difference between simulation and reality lies in the ontological experience that accompanies the activity of knowing. In contrast, computational systems produce only informational correlations without an existential experience of one's own existence.

The most fundamental epistemological limit arises when knowledge is understood as the subject's existential transformation, rather than simply the accumulation of informational representations. AGI can expand inferential capacity, integrate multimodality of data, and produce cognitive performance that increasingly resembles human capabilities. However, all these achievements remain functional only as long as there is no adequate philosophical justification for the existence of phenomenological consciousness, ontological reflexivity, and the capacity to accept intelligible forms in an immaterial manner. Islamic philosophy's critique of claims of superintelligence rests not on a dogmatic rejection of technology, but rather on the fundamental distinction between performative intelligence and intellectual actuality. This framework does not rule out the possibility of future AGI developments. However, it emphasizes that the equivalence

between computational systems and actual intelligence cannot yet be maintained metaphysically or phenomenologically.

### **The Hierarchy of Intellects as a Critique of Claims of Superintelligence**

The hierarchy of intelligences provides an ontological framework that enables a more precise evaluation of claims about superintelligence without reducing intelligence to mere computational capacity. Much modern discourse on superintelligence equates increased computational speed, expanded model parameters, and data-processing efficiency with increased intellectual capacity. This perspective is problematic because it equates calculative function with an intellectual mode of existence. The Islamic philosophical tradition views the intellect as an ontological actuality that enables the subject to grasp the universality of meaning and reflect on their own existence (Qutbuddin & Qutbuddin, 2023). Critiques of superintelligence are not directed at rejecting technological progress but rather at the metaphysical claim that intensifying computational capacity can lead to existential elevation.

The distinction between quantitative intensification and qualitative transformation is crucial for distinguishing computational performance from intellectual actualization. AGI systems can expand their analytical capacity through parameter accumulation, database expansion, and neural network optimization. However, these improvements remain within a formal operational horizon that does not extend beyond their material structure (Li, Zhang, Zhu, & Chen, 2024). Emergence theory is often used to explain how consciousness can emerge from system complexity, but functional emergence is not synonymous with ontological transformation. Complexity can generate more sophisticated adaptive behavioral patterns without generating reflective subjectivity or intrinsic self-awareness. This critique aligns with John Searle's (1969) argument that symbolic manipulation does not automatically yield semantic understanding. The Islamic philosophical tradition positions intellect as an actuality, understood as the ability to grasp universal meaning in a nonmaterial manner (Mudin & Desnafitri, 2020). The quantity of computational operations is insufficient to explain how a material system can transform into a subject possessing reflective consciousness and intrinsic epistemic experience.

The distinction between performative and existential superiority highlights the limitations of claims of superintelligence. Performative superiority relates to task-completion efficiency, predictive capacity, calculative accuracy, and the ability to manage data complexity on a scale beyond that of humans (Shet, Patil, & Chandawarkar, 2019). Existential superiority refers to the ontological status of an intellectual subject possessing a unity of consciousness, intrinsic intentionality, self-reflexivity, and meaning-orientation (Ruse, 2021). While AI may surpass humans in pattern recognition, system optimization, and statistical analysis, this superiority does not automatically result in a superior intellectual existence. The Islamic

intellectual tradition views consciousness not simply as the output of a closed causal process, but as a form of actuality that enables the subject to exist for itself (Black, 2024). This reflective presence cannot be reduced to input-output relations or probabilistic mechanisms. When claims of superintelligence erase the distinction between performance and existence, the discourse shifts ontological measurement toward technical metrics that are inadequate to explain the nature of intelligence.

The Islamic ontological framework deepens this critique through a hierarchical conception of being that distinguishes between material, imaginative, rational, and intellectual levels. Ibn Sīnā asserted that the intellect possesses a reflective capacity that cannot be explained solely by material mechanisms (Efremova, 2025), while Mulla Sadra (1981) viewed consciousness as an intensification of existence, related to the degree of actuality in being. This perspective suggests that intellectual existence requires an ontological unity between the knowing subject and the activity of knowing itself. AI continues to operate through material substrates, algorithmic parameters, and externally defined goals.

The metaphysical problematic of superintelligence becomes clearer when the concept of transcending the human intellect is analyzed through the theory of the unity of the subject and object of knowledge. The Islamic philosophical tradition recognizes the concept of *ittihad al-‘Aqil wa al-Ma‘qūl*, which holds that intellectual knowledge is not merely an external representation but an epistemic union between subject and object at a specific level (Al Walid et al., 2025). Such knowledge presupposes existential presence, not merely symbol processing. Artificial Intelligence processes statistical representations and formal correlations without experiencing meaning as an intrinsic epistemic experience. Computational systems can produce linguistic output that resembles human reflection, but this output remains derived from syntactic relations and lacks phenomenological awareness. Increasing model parameters merely enriches the network of probabilistic relations without transforming its existence into an intellectual subject (Hagendorff, Fabi, & Kosinski, 2023). Claims that computational scale can produce ontological transcendence tend to blur the distinction between simulated understanding and actual understanding.

Critiques of superintelligence also require a direct dialogue with the functionalist paradigm that dominates contemporary AI philosophy. Functionalism assumes that mental states can be reduced to functional patterns implemented by any system, provided the causal relations are identical (Malicki, 2021). This approach assumes that Artificial Intelligence could possess consciousness if its cognitive functions are as complex as those of humans. However, this approach struggles to explain subjective experience, the unity of consciousness, and the nature of first-person awareness, which cannot be observed solely through external behavior. Hubert Dreyfus’s (1992) critique of artificial intelligence demonstrates

that human understanding always involves an existential engagement with the world, not simply the manipulation of formal rules. Thomas Nagel (1974) also asserts that subjective experience has a phenomenological dimension that cannot be reduced to objective description. The Islamic philosophical tradition reinforces this critique by positioning the intellect as an existential actuality that transcends mechanistic functions and closed causal relations.

The hierarchy of intellects ultimately demonstrates that the primary problem with superintelligence discourse lies in its tendency to equate technological sophistication with ontological elevation. The modern computational paradigm often assumes that the intensification of cognitive functions will gradually produce full consciousness and intellect. This assumption fails to account for the metaphysical requirements for the existence of an intellectual subject with self-reflexivity, unity of consciousness, and a teleological orientation toward meaning and truth. The Islamic philosophical tradition positions the intellect as a nonmaterial actuality that cannot be understood solely through mechanistic descriptions. The critique of superintelligence is not a rejection of the progress of artificial intelligence, but rather an assertion that computational performance is not identical to the degree of intellectual existence. The inability to distinguish between these two realms leads to metaphysical inflation, shifting the measure of existence toward technical parameters. The hierarchy of intellects offers a philosophical corrective by asserting that the total transcendence of human intellect remains ontologically problematic despite the continued acceleration of computational capacity.

## Conclusion

The intellectual hierarchy of Islamic philosophy asserts that human intelligence does not stop at representational capacity, but rather moves through a process of ontological actualization towards actual and *mustafad* intellect characterized by reflective awareness, intentionality, and a connection with the transcendent order of being. The reconstruction shows that AGI, although capable of producing complex inference patterns, predictive optimization, and adaptive decision-making simulations, still operates at the instrumental-computational level without the transformation of the knowing subject that enables conscious experience and existential meaning. This finding extends the critique of modern cognitive reductionism by presenting an ontology of intellect as an alternative evaluative framework for contemporary AI philosophy, while also providing practical implications for the development of technology governance, the limitation of moral agency attributions, and the formulation of AI ethics grounded in a human-centered ontology. The limitations of this study are evident in the dominance of conceptual-comparative approaches, the absence of evaluations of the latest AGI architectures and embodied AI, and the possibility of anachronistic interpretations when classical metaphysical concepts are applied to modern computing systems. Further research agendas should be directed toward interdisciplinary dialogue

among Islamic epistemology, the philosophy of consciousness, cognitive science, and empirical analysis of machine learning, so that the epistemological boundaries of AGI can be mapped more precisely and operationally.

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### Author Contribution Statement

The authors' contributions to the preparation of this manuscript are divided based on their respective substantive roles. SK contributed to the conceptualization of the research, the formulation of the study framework, the development of the methodology, the analysis and interpretation of the data, the preparation of the main draft, the critical revision of the manuscript's substance, and correspondence during the submission and publication process. ND contributed to the search and collection of sources, data processing, reference verification, and preparation and editing of parts of the manuscript. MY contributed to the validation of the analysis results, the critical review of the argumentation, the refinement of the language and writing style, and the final approval of the published version of the manuscript. All authors have read, approved, and are responsible for the contents of the manuscript.

### Conflict of Interest

The authors declare that there are no conflicts of interest of any kind related to the preparation, execution, analysis, writing, or publication of this manuscript. No financial, professional, institutional, or personal relationships exist that could affect the objectivity, integrity, or interpretation of the results presented in the manuscript. The entire research and writing process was conducted independently, guided by academic considerations and principles of scientific ethics.

### AI Usage Statement

The authors declare that artificial intelligence (AI) technology was used only to a limited extent to help improve language quality, correct grammar, edit writing style, and support manuscript formatting. The use of AI did not include problem formulation, conceptual framework development, data collection and interpretation, analysis, argument development, formulation of findings, concluding, or scientific decision-making. All research results, findings, concepts, analyses, ideas, interpretations, and conclusions presented in this manuscript are the intellectual work of the authors. The authors are fully responsible for the accuracy, integrity, originality, and academic substance of the entire contents of the manuscript submitted for publication.

### Bibliography

Adamson, P. (2024). Thinking with Rosa: assent in philosophy of the Islamic world. *British Journal for the History of Philosophy*, 32(3), 647–665. <https://doi.org/10.1080/09608788.2024.2337034>

- Adamson, P., & Taylor, R. C. (2008). Arabic and Islamic Psychology and Philosophy of Mind. In *Stanford Encyclopedia of Philosophy*. Stanford: Stanford University.
- Al Walid, K., Toresano, W. Z. Z., Widjayanti, R. S., & Norman, N. A. (2025). Reframing Religious Experience through 'Ālam al-Mithāl: A Philosophical and Mystical Perspective in Islamic Thought. *Teosofi: Jurnal Tasawuf Dan Pemikiran Islam*, 15(1), 148–171. <https://doi.org/10.15642/teosofi.2025.15.1.148-171>
- Alvarado, R. (2023). AI as an Epistemic Technology. *Science and Engineering Ethics*, 29(5), 32. <https://doi.org/10.1007/s11948-023-00451-3>
- Assya'bani, R., & Falach, G. (2022). The Philosophy of Illumination: Esotericism in Shihāb ad-Dīn Suhrawardī's Sufism. *ESENSIA: Jurnal Ilmu-Ilmu Ushuluddin*, 23(1), 53–64. <https://doi.org/10.14421/esensia.v22i2.2398>
- Baizhuma, S., Duisenbayev, A., Kaupenbayeva, S., Meirbayev, B., Omirbekova, A., Kurmanbek, A., & Kossalbayev, B. D. (2025). Spiritual and Theological Aspects of Personal Development in the Heritage of Al-Farabi. *Pharos Journal of Theology*, 106(4), 4035. <https://doi.org/10.46222/pharosjot.106.4035>
- Bennett, M. T. (2023). Emergent Causality and the Foundation of Consciousness. In *Artificial General Intelligence* (pp. 52–61). Cham: Springer. [https://doi.org/10.1007/978-3-031-33469-6\\_6](https://doi.org/10.1007/978-3-031-33469-6_6)
- Birle, C., Slavoaca, D., Balea, M., Livint Popa, L., Muresanu, I., Stefanescu, E., ... Muresanu, D. F. (2021). Cognitive function: holarchy or holacracy? *Neurological Sciences*, 42(1), 89–99. <https://doi.org/10.1007/s10072-020-04737-3>
- Black, D. L. (2024). Varieties of consciousness in classical Arabic thought: Avicenna, Averroes, and the mutakallimūn. *British Journal for the History of Philosophy*, 32(4), 818–839. <https://doi.org/10.1080/09608788.2023.2201615>
- Chalmers, D. J. (1996). *The Conscious Mind: In Search of a Fundamental Theory*. New York: Oxford University Press.
- Development, O. for E. C. and. (2025). *Governing with Artificial Intelligence: The State of Play and Way Forward in Core Government Functions*. Retrieved from [https://www.oecd.org/en/publications/governing-with-artificial-intelligence\\_795de142-en.html](https://www.oecd.org/en/publications/governing-with-artificial-intelligence_795de142-en.html)
- Ding, J., Zhang, Y., Shang, Y., Zhang, Y., Zong, Z., Feng, J., ... Li, Y. (2026). Understanding World or Predicting Future? A Comprehensive Survey of World Models. *ACM Computing Surveys*, 58(3), 1–38. <https://doi.org/10.1145/3746449>
- Dolgikh, S. (2025). The trap of presumed equivalence: Artificial General Intelligence should not be assessed on the scale of human intelligence. *Discover Artificial Intelligence*, 5(1), 70. <https://doi.org/10.1007/s44163-025-00317-6>
- Dreyfus, H. L. (1992). *What Computers Still Can't Do: A Critique of Artificial Reason*. Cambridge: MIT Press.
- Dubrovsky, D. I. (2022). The development of artificial intelligence and the global crisis of earthly civilization (to the analysis of socio-humanitarian problems). *Philosophy of Science and Technology*, 27(2), 100–107. <https://doi.org/10.21146/2413-9084-2022-27-2-100-107>

- Efremova, N. V. (2024). About Avicenna's modification of Aristotelian hylemorphism: immaterialization of the human soul. *Orientalistica*, 6(5), 927–942. <https://doi.org/10.31696/2618-7043-2023-6-5-927-942>
- Efremova, N. V. (2025). On Intellectual Intention of Falsafa's Felicitology. *Islam in the Modern World*, 20(3), 93–110. <https://doi.org/10.22311/2074-1529-2024-20-3-93-110>
- Efremova, Natalia V. (2020). The Islamization of Aristotelism in the Metaphysics of Ibn Sina. *RUDN Journal of Philosophy*, 24(1), 39–54. <https://doi.org/10.22363/2313-2302-2020-24-1-39-54>
- Elmahjub, E. (2023). Artificial Intelligence (AI) in Islamic Ethics: Towards Pluralist Ethical Benchmarking for AI. *Philosophy & Technology*, 36(4), 73. <https://doi.org/10.1007/s13347-023-00668-x>
- Eskandian, A. H., Setiyani, W., Muktafi, M., Kholid, A., & Babaei, A. (2023). The Conceptions of Divine Revelation: A Comparative Study of the Views of Ibn Sina and Mulla Sadra. *Teosofi: Jurnal Tasawuf Dan Pemikiran Islam*, 13(1), 159–179. <https://doi.org/10.15642/teosofi.2023.13.1.159-179>
- Ezeamuzie, N. O., Leung, J. S. C., & Ting, F. S. T. (2022). Unleashing the Potential of Abstraction From Cloud of Computational Thinking: A Systematic Review of Literature. *Journal of Educational Computing Research*, 60(4), 877–905. <https://doi.org/10.1177/07356331211055379>
- Fei, N., Lu, Z., Gao, Y., Yang, G., Huo, Y., Wen, J., ... Wen, J.-R. (2022). Towards artificial general intelligence via a multimodal foundation model. *Nature Communications*, 13(1), 3094. <https://doi.org/10.1038/s41467-022-30761-2>
- Fjelland, R. (2020). Why general artificial intelligence will not be realized. *Humanities and Social Sciences Communications*, 7(1), 10. <https://doi.org/10.1057/s41599-020-0494-4>
- Frödin, O. (2025). Meaning and Cognition: A Unified Approach to Meaning-Making. *Sociological Theory*, 43(3), 211–237. <https://doi.org/10.1177/07352751251346160>
- Fui-Hoon Nah, F., Zheng, R., Cai, J., Siau, K., & Chen, L. (2023). Generative AI and ChatGPT: Applications, challenges, and AI-human collaboration. *Journal of Information Technology Case and Application Research*, 25(3), 277–304. <https://doi.org/10.1080/15228053.2023.2233814>
- Griffel, F. (2021). *The Formation of Post-Classical Philosophy in Islam*. Oxford University Press. <https://doi.org/10.1093/oso/9780190886325.001.0001>
- Gupta, R., & Roughgarden, T. (2020). Data-driven algorithm design. *Communications of the ACM*, 63(6), 87–94. <https://doi.org/10.1145/3394625>
- Hagendorff, T., Fabi, S., & Kosinski, M. (2023). Human-like intuitive behavior and reasoning biases emerged in large language models but disappeared in ChatGPT. *Nature Computational Science*, 3(10), 833–838. <https://doi.org/10.1038/s43588-023-00527-x>
- Hans, J. (2025). A Hybrid Cognitive Architecture for AGI: Bridging Symbolic and

- Subsymbolic AI. *International Journal For Multidisciplinary Research*, 7(2), 39377. <https://doi.org/10.36948/ijfmr.2025.v07i02.39377>
- Ilić, D., & Gignac, G. E. (2024). Evidence of interrelated cognitive-like capabilities in large language models: Indications of artificial general intelligence or achievement? *Intelligence*, 106, 101858. <https://doi.org/10.1016/j.intell.2024.101858>
- Intelligence, S. I. for H.-C. A. (2025). *The 2025 AI Index Report*. Retrieved from <https://hai.stanford.edu/ai-index/2025-ai-index-report>
- Jankovic, M., & Ludwig, K. (2020). Collective Intentionality. In *Philosophy*. Oxford University Press. <https://doi.org/10.1093/obo/9780195396577-0411>
- Kanaya, T., & Magine, A. (2024). How Can the Current State of AI Guide Future Conversations of General Intelligence? *Journal of Intelligence*, 12(3), 36. <https://doi.org/10.3390/jintelligence12030036>
- Kaukua, J. (2020). Avicenna's Outsourced Rationalism. *Journal of the History of Philosophy*, 58(2), 215–240. <https://doi.org/10.1353/hph.2020.0037>
- Kuhn, R. L. (2024). A landscape of consciousness: Toward a taxonomy of explanations and implications. *Progress in Biophysics and Molecular Biology*, 190, 28–169. <https://doi.org/10.1016/j.pbiomolbio.2023.12.003>
- Li, J. X., Zhang, T., Zhu, Y., & Chen, Z. (2024). Artificial general intelligence for the upstream geoenergy industry: A review. *Gas Science and Engineering*, 131, 205469. <https://doi.org/10.1016/j.jgsce.2024.205469>
- López-Farjeat, L. X. (2021). Avicenna on information processing and abstraction. In *Information and the History of Philosophy* (pp. 123–136). Milton Park: Routledge. <https://doi.org/10.4324/9781351130752-10>
- Louwerse, M. M. (2018). Knowing the Meaning of a Word by the Linguistic and Perceptual Company It Keeps. *Topics in Cognitive Science*, 10(3), 573–589. <https://doi.org/10.1111/tops.12349>
- Malicki, M. (2021). A Formal Analysis of the Concept of Behavioral Individuation of Mental States in the Functionalist Framework. *Logic and Logical Philosophy*, 31(1), 161–173. <https://doi.org/10.12775/LLP.2021.012>
- Marcotte, R. D. (2012). Knowledge in Later Islamic Philosophy: Mulla Sadra on Existence, Intellect, and Intuition. *Journal of Islamic Studies*, 23(2), 236–239. <https://doi.org/10.1093/jis/ets002>
- McGinnis, J. (2006). Making Abstraction Less Abstract: The Logical, Psychological, and Metaphysical Dimensions of Avicenna's Theory of Abstraction. *Proceedings of the American Catholic Philosophical Association*, 80, 169–183. Retrieved from <https://philpapers.org/rec/MCGMAL-3>
- Mendelovici, A. (2025). Phenomenal Intentionality and Derived Intentionality A Commentary on David Pitt's The Quality of Thought. *Journal of Consciousness Studies*, 32(3), 175–192. <https://doi.org/10.53765/20512201.32.3.175>
- Mikhaylova, M. V., & Dmitrieva, V. A. (2021). The Interdependence of Humanistic

- Values and the Level of Existential Fulfillment of an Intellectual Leader. *EPJ Web of Conferences*, 248, 03005. <https://doi.org/10.1051/epjconf/202124803005>
- Mikki, S. (2023). Artificial General Intelligence and Noncomputability: A Dynamical Framework. *Journal of Artificial Intelligence and Consciousness*, 10(01), 71–101. <https://doi.org/10.1142/S2705078522500163>
- Mitchell, M. (2024). Debates on the nature of artificial general intelligence. *Science*, 383, eado7069. <https://doi.org/10.1126/science.ado7069>
- Mohammed, H. H. (2025). The Dynamic Soul: Mulla Sadra's Philosophy of Consciousness through Essential Movement in Dialogue with Past and Present Perspectives. *Open Journal of Philosophy*, 15(3), 707–721. <https://doi.org/10.4236/ojpp.2025.153043>
- Mudin, M. I., & Desnafitri, A. (2020). Al-Attas on Intellect and It's Relevance to The Islamization of Knowledge: Sufism philosophical Approach. *Khatulistiwa*, 9(2), 5–19. <https://doi.org/10.24260/khatulistiwa.v9i2.1479>
- Mujahidin, S. (2024). The Supremacy of Revelation over Reason: Al-Ghazali's Critique of Rationalist Philosophy in Tahafut Al-Falasifah. *Islamic Thought Review*, 2(2), 151–162. <https://doi.org/10.30983/itr.v2i2.8838>
- Naccache, L. (2018). Why and how access consciousness can account for phenomenal consciousness. *Philosophical Transactions of the Royal Society B: Biological Sciences*, 373(1755), 20170357. <https://doi.org/10.1098/rstb.2017.0357>
- Nagel, T. (1974). What Is It Like to Be a Bat? *The Philosophical Review*, 83(4), 435–450.
- Ogden, S. R. (2022). *Averroes on Intellect*. Oxford University Press. <https://doi.org/10.1093/oso/9780192896117.001.0001>
- Ogiela, L. (2020). Transformative computing in advanced data analysis processes in the cloud. *Information Processing & Management*, 57(5), 102260. <https://doi.org/10.1016/j.ipm.2020.102260>
- Pavese, C. (2019). The psychological reality of practical representation. *Philosophical Psychology*, 32(5), 784–821. <https://doi.org/10.1080/09515089.2019.1612214>
- Qutbuddin, T., & Qutbuddin, A. (2023). "The Intellect is the Essence of the Human": The Arabic Poem of the Intellect (Qaṣīdat al-ʿAql) by the Indian Fatimid-Ṭayyibī Dāʿī al-Muṭlaq Sayyidna Taher Saifuddin (1888–1965). *Journal of Arabic Literature*, 54(1–2), 1–50. <https://doi.org/10.1163/1570064x-12341471>
- Raman, R., Kowalski, R., Achuthan, K., Iyer, A., & Nedungadi, P. (2025). Navigating artificial general intelligence development: societal, technological, ethical, and brain-inspired pathways. *Scientific Reports*, 15(1), 8443. <https://doi.org/10.1038/s41598-025-92190-7>
- Razi, F. M. (2024). An Analysis of Mulla Sadra's Thoughts on the Soul in the Context of Modern Mental Health. *Journal on Islamic Studies*, 1(3), 166–177. <https://doi.org/10.35335/zazc2030>

- Report, I. A. S. (2026). *International AI Safety Report*. Retrieved from <https://internationalaisafetyreport.org/>
- Rol, A., Jaeger, J., & Kauffman, A. S. (2022). How Organisms Come to Know the World: Fundamental Limits on Artificial General Intelligence. *Frontiers in Ecology and Evolution*, 9, 1–14. <https://doi.org/10.3389/fevo.2021.806283>
- Ruse, M. (2021). *A Philosopher Looks at Human Beings*. Cambridge: Cambridge University Press. <https://doi.org/10.1017/9781108907057>
- Sadra, M. (1981). *al-Ḥikmah al-Mutaʿāliyah fī al-Asfār al-ʿAqliyyah al-Arbaʿah*. Tehran: Dār al-Kutub al-Islāmiyyah.
- Searle, J. (1969). *Speech Acts: An Essay in the Philosophy of Language*. Cambridge: Cambridge University Press.
- Searle, J. R. (1980). Minds, brains, and programs. *Behavioral and Brain Sciences*, 3(3), 417–424. <https://doi.org/10.1017/S0140525X00005756>
- Sebastián, M. Á. (2021). First-person representations and responsible agency in AI. *Synthese*, 199(3–4), 7061–7079. <https://doi.org/10.1007/s11229-021-03105-8>
- Seiberth, L. C. (2022). A Précis of Intentionality in Sellars: A Transcendental Account of Finite Knowledge. *International Journal of Philosophical Studies*, 30(5), 519–524. <https://doi.org/10.1080/09672559.2022.2162315>
- Shet, S. V., Patil, S. V., & Chandawarkar, M. R. (2019). Competency based superior performance and organizational effectiveness. *International Journal of Productivity and Performance Management*, 68(4), 753–773. <https://doi.org/10.1108/IJPPM-03-2018-0128>
- Shiller, D. (2024). Functionalism, integrity, and digital consciousness. *Synthese*, 203(2), 47. <https://doi.org/10.1007/s11229-023-04473-z>
- Skokowski, P. (2022). Sensing Qualia. *Frontiers in Systems Neuroscience*, 16, 795405. <https://doi.org/10.3389/fnsys.2022.795405>
- Suswita, S. (2025). Antara Taklid dan Ijtihad: Dialektika Pembentukan Nalar Kritis Siswa dalam Pendidikan Islam [Between Taqlid and Ijtihad: The Dialectic of the Formation of Students' Critical Reasoning in Islamic Education]. *Al-Qarawiyyin: Jurnal Ilmu Ushuluddin*, 1(3), 208–224. <https://doi.org/10.64691/al-qarawiyyin.v1i3.52>
- Taufik, M., Abidin, M. Z. A., & Khairiyanto. (2023). Examining Ibn Sīnā's and Suhrawardī's Notion of the Soul: Reflections on Their Philosophical Contributions in the Modern Context. *ESENSIA: Jurnal Ilmu-Ilmu Ushuluddin*, 24(1), 65–83. <https://doi.org/10.14421/esensia.v24i1.4330>
- Taylor, R. C. (2018). Avicenna and the Issue of the Intellectual Abstraction of Intelligibles. In *Philosophy of Mind in the Early and High Middle Ages* (pp. 56–82). New York: Routledge, 2018. | Series: The history of the philosophy of mind; Volume 2: Routledge. <https://doi.org/10.4324/9780429508196-4>
- Wang, J., Luo, X., Zhang, X., & Du, S. (2025). Artificial General Intelligence (AGI)

- Applications and Prospect in Oil and Gas Reservoir Development. *Processes*, 13(5), 1413. <https://doi.org/10.3390/pr13051413>
- Zahavi, D. (2005). *Subjectivity and Selfhood: Investigating the First-Person Perspective*. Cambridge: MIT Press.
- Zangeneh, P., & McCabe, B. (2020). Ontology-based knowledge representation for industrial megaprojects analytics using linked data and the semantic web. *Advanced Engineering Informatics*, 46, 101164. <https://doi.org/10.1016/j.aei.2020.101164>
- Zavgorodny, T. (2024). Consciousness and Its Metamorphoses: Temporality and Ownership of Experience. *Logos et Praxis*, (2), 6–15. <https://doi.org/10.15688/lp.jvolsu.2024.2.1>