

Integration of the Moral Ethical Compass with Contemporary AI Ethics: A Temporal and Computational Framework for Responsible Artificial Intelligence

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Abstract

Artificial intelligence is increasingly embedded in systems that influence decisions across governance, industry, healthcare, education, and social life. Current AI ethics frameworks emphasize fairness, accountability, transparency, privacy, and human oversight, but many remain centred on compliance and immediate risk management rather than deeper moral grounding and long-term responsibility. This paper proposes a temporal and computational framework that integrates the Moral Ethical Compass with AI ethics. The framework, MEC, is organized around six ethical pillars: universal principles, cultural traditions, moral values, institutional codes, accountability mechanisms, and foresight ethics. Together, these pillars connect timeless values, historical context, present accountability, and future consequences. The paper develops a temporal alignment matrix and an Ethical Score Function to make the framework operational for ethical assessment. The proposed approach is applied to sentiment analysis, bias mitigation, explainable AI, AI governance, privacy protection, regulatory compliance, and generative AI. The central argument is that responsible AI must move beyond static compliance and develop into a dynamic, context aware, and future oriented ethical system.

Keywords: artificial intelligence, AI ethics, moral reasoning, ethical governance, temporal ethics, accountability, fairness, transparency, responsible AI, computational ethics

1. Introduction

1.1 Background

Artificial intelligence has become one of the defining technologies of the present era. It now shapes decision making in healthcare, finance, education, public administration, security, and digital communication. AI systems are no longer confined to laboratories or specialized research settings. They are embedded in daily life, often in ways that are not visible to the people affected by them. As a result, questions of ethics, governance, accountability, and social responsibility have become central to the discussion of AI.

1.2 Ethical challenge

The rapid expansion of AI has made one thing clear. Technical performance alone is not enough. A model may be accurate, efficient, and scalable, yet still produce socially harmful results. It may reinforce bias, reduce transparency, weaken accountability, or create effects that are difficult to reverse. This is why AI ethics is no longer a peripheral issue. It is now a

core requirement for responsible design, deployment, and governance.

1.3 Need for a stronger framework

Most contemporary AI ethics frameworks recognize these concerns and respond with principles such as fairness, transparency, accountability, privacy, human oversight, and nonmaleficence. These principles are important and necessary. However, they are often presented as broad commitments rather than as part of a structured ethical architecture. In practice, this means that many organizations can endorse ethical language without fully embedding ethics into technical workflows, institutional processes, and long-term decision making. The result is a gap between ethical intention and ethical action.

1.4 Purpose of the study

This paper argues that AI ethics must be understood as more than a set of external guidelines. It should be treated as a temporal and adaptive system that reflects universal values, historical learning, present responsibility, and future consequences. The Moral Ethical Compass,

developed by Garole (2025), is introduced here as such a framework. It brings together six pillars, namely universal principles, cultural traditions, moral values, institutional codes, accountability mechanisms, and foresight ethics, into a unified structure for ethical reasoning.

1.5 Contribution

The purpose of this study is not to replace existing ethical frameworks, but to strengthen them with a model that is more integrative and more time sensitive. Responsible AI requires more than a list of principles. It requires a way to connect moral foundations, social context, institutional systems, and future risk. MEC offers one such way. This study makes three main contributions. First, it presents MEC as a conceptual framework for ethical AI. Second, it develops a temporal alignment matrix that links ethical pillars to time dimensions. Third, it introduces a computational Ethical Score Function that allows ethical alignment to be evaluated in a structured way.

2. Literature Context and Ethical Need

2.1 Growth of AI ethics literature

Research on AI ethics has expanded rapidly over the past decade. Yet much of it points to the same basic problem. There is no shortage of principles, but there is still a shortage of operational methods. The literature repeatedly mentions fairness, accountability, transparency, privacy, beneficence, human control, and safety. These values are now widely accepted in policy papers, academic research, and institutional guidelines. Even so, the key question remains unanswered. How should these values be translated into actual design choices, governance mechanisms, and deployment practices?

2.2 Principle based frameworks

One major stream of literature has focused on principle-based ethics. This work has been useful in establishing normative standards. The OECD AI Principles and UNESCO's Recommendation on the Ethics of Artificial Intelligence are important examples. Both emphasize human rights, dignity, fairness, transparency, and oversight. They have helped create a common language for responsible AI. Yet they do not fully explain how ethical principles should be applied across different contexts, time frames, and levels of risk (OECD, 2019; UNESCO, 2021).

2.3 Fairness and bias studies

Another stream of literature has examined fairness in machine learning. Scholars have shown that bias can emerge from training data, feature selection, optimization goals, deployment environments, and institutional use. This has made it clear that ethical failure is often structural rather than accidental. Bias is not simply a technical bug. It is often the result of historical patterns, social assumptions, and institutional priorities that become embedded in data and models. This insight is crucial because it shows that AI ethics must go beyond surface level compliance (Mehrabi et al., 2021).

2.4 Accountability and explainability

A third stream of work has explored accountability and explainability. These studies show that an AI system can be technically powerful while remaining socially opaque. When decisions cannot be explained, reviewed, or challenged, trust becomes fragile. Explainability is therefore not only a technical matter. It is also an ethical and institutional matter. Likewise, accountability is not just about identifying an operator after harm has occurred. It is about building systems in which responsibility is traceable from the beginning (Floridi et al., 2018; Jobin et al., 2019).

2.5 Need for integration

Despite these advances, the literature still lacks an integrated framework that connects moral foundations with time aware ethical reasoning. Many models focus on present day fairness or legal compliance, but fewer address the long-term consequences of AI adoption. This matters because AI systems create effects that do not end at the moment of decision. They may influence future data, future institutions, and future opportunities. For this reason, a temporal framework is needed.

2.6 MEC as a response

MEC responds to this need by treating ethics as a layered and temporal system. Rather than limiting ethical reasoning to present day compliance, it brings past experience, current norms, and future consequences into the same conceptual space. That makes it especially suitable for AI, where decisions are rarely confined to the moment in which they are made. It also allows ethical evaluation to become more adaptive, more context aware, and more practically relevant (Garole, 2025).

3. Conceptual Foundation of MEC

3.1 Core idea

The Moral Ethical Compass is based on the idea that ethics is not a single rule or fixed list of values. It is a layered system that unfolds across different time horizons and moral sources. Each layer serves a distinct purpose. Some layers provide universal direction. Others provide historical depth. Some guide present judgment. Others look ahead to future consequences. The framework is valuable because it avoids the reduction of ethics to a single dimension.

3.2 Ethical pillars

3.2.1 Universal principles

Universal principles provide the basic moral foundation. These include ideas such as justice, fairness, dignity, non-harm, respect, and human worth. They are treated as enduring ethical anchors that should remain stable across contexts. In AI ethics, these principles are essential because they help ensure that efficiency does not override human dignity. They also provide a moral boundary that limits harmful technological behaviour.

3.2.2 Cultural traditions

Cultural traditions add historical and social depth. They remind us that ethical norms do not emerge in a vacuum. Every society carries inherited values, practices, expectations, and assumptions. Some of these are constructive and wise, while others may carry bias, exclusion, or inequality. Cultural traditions therefore help explain why ethics must remain sensitive to social context. A system that appears fair in one setting may be experienced very differently in another.

3.2.3 Moral values

Moral values refer to the ethical sense that guides judgment in everyday life. They reflect lived moral awareness, personal responsibility, and the internal habit of choosing what is right. Moral values matter because institutions are ultimately made up of human actors. Policies alone cannot produce ethical action unless decision makers also possess ethical awareness and moral commitment.

3.2.4 Institutional codes

Institutional codes translate ethics into formal systems of law, policy, regulation, and organizational practice. They are essential because AI is usually deployed within institutions rather than outside them. Institutional codes create boundaries, procedures, and

standards. They help turn moral ideas into operational rules. Without such codes, ethical intention often remains vague and unenforced.

3.2.5 Accountability mechanisms

Accountability mechanisms ensure that decisions can be traced, reviewed, challenged, and corrected. They are necessary because AI systems can affect many people without making their logic visible. Accountability supports auditability, responsibility, and remedial action. It also encourages institutions to take ethical design seriously from the beginning.

3.2.6 Foresight ethics

Foresight ethics extends the framework into the future by asking whether a decision will still be ethically defensible when its longer-term consequences become visible. This pillar is especially important for AI because the most serious harms are not always immediate. Some emerge gradually through repeated use, social diffusion, or institutional dependence. Foresight ethics encourages preventive thinking instead of reactive correction.

3.3 Formal representation

In formal terms, MEC may be written as:

$$MEC = (UP, CT, MV, IC, AM, FE)$$

This formulation shows that ethics is not built around one dominant pillar. Instead, it emerges through the interaction of multiple ethical layers. That makes the framework especially suitable for AI systems, which also operate through layered processes of data, rules, inference, feedback, and adaptation (Garole, 2025).

3.4 Temporal alignment matrix

The six MEC pillars can be aligned with four temporal dimensions. Universal principles belong to the timeless level because they express enduring moral commitments. Cultural traditions belong to the past because they carry historical memory and inherited social context. Moral values, institutional codes, and accountability mechanisms belong to the present because they govern current judgment, compliance, and responsibility. Foresight ethics belongs to the future because it addresses long term consequences, sustainability, and emerging risks.

This alignment is useful because it shows that ethical reasoning does not unfold in a flat or uniform way. Some ethical considerations are foundational, some are contextual, some are operational, and some are anticipatory. Together, they create a fuller ethical

picture. In AI systems, this kind of temporal structure is especially important because the effects of a decision may appear long after the decision itself has been made (Garole, 2025).

4. Why AI Ethics Needs MEC

4.1 Fragmentation in current approaches

Current AI ethics discussions are valuable, but they often remain fragmented. One guideline may focus on fairness, another on transparency, another on privacy, and another on accountability. These are all important concerns, yet they are deeply connected in practice. A system that is transparent may still be unfair. A system that is accurate may still be culturally insensitive. A system that is compliant may still produce future harm. Ethical evaluation must therefore move beyond isolated principles and develop a more integrated structure.

4.2 Temporal depth

MEC offers such a structure because it links ethics to both moral depth and temporal awareness. It does not treat ethics as a static checklist. Instead, it treats ethics as a living framework that can reflect universal values, historical context, present responsibility, and future consequences at the same time. This is especially relevant for AI because many harms do not become visible at the point of deployment. They may appear later, after systems have scaled, users have adapted, and institutional dependence has increased.

4.3 Institutional complexity

Another reason MEC is needed is that AI systems often operate within complex organizations. A model may be designed by one team, trained on data from another source, deployed by a different department, and interpreted by end users who do not fully understand how it works. In such settings, ethical responsibility can become dispersed. MEC helps restore coherence by giving institutions a common ethical language.

4.4 Bridging principle and practice

The framework also helps address the gap between principle and practice. Many organizations agree that AI should be fair, accountable, and transparent. The harder question is how to check whether these goals are actually being met. MEC begins to answer that question by turning ethical alignment into something that can be assessed, scored, reviewed, and improved over time.

5. Limitations of Contemporary AI Ethics

5.1 Present focus

Despite its progress, contemporary AI ethics still has several weaknesses. One of the biggest is its tendency to remain present focused. Many systems are designed to comply with current laws or satisfy immediate governance requirements, but they do not sufficiently consider long term harm or delayed consequences. This can make them reactive rather than preventive.

5.2 Fragmentation

Another weakness is fragmentation. Different tools are often used to assess fairness, privacy, transparency, and accountability separately. While each of these concerns is important, they are deeply interconnected in practice. A system may be transparent but unfair, or accountable in theory but opaque in operation. Without a unifying structure, ethical evaluation remains incomplete.

5.3 Limited operationalization

A third limitation is that many ethical frameworks are descriptive rather than operational. They state what should matter, but they do not always explain how to measure ethical alignment or how to update it over time. This is where MEC offers a practical advantage. By linking ethical values to a score-based framework, it creates a bridge between moral theory and computational implementation.

5.4 Symbolic ethics

A fourth weakness is that ethical language is often used at a general level without clear institutional consequences. Organizations may publish ethics statements, but those statements are not always linked to procurement, model selection, audit procedures, or post deployment monitoring. In practice, this can make ethics symbolic rather than substantive. MEC seeks to reduce that gap by connecting ethical ideals to operational checks.

5.5 Cultural diversity

Finally, many current frameworks do not adequately account for cultural diversity. Ethical assumptions that are taken for granted in one region or institution may not be sufficient in another. AI systems are increasingly global, while ethical expectations remain locally shaped. MEC acknowledges this reality by including cultural traditions as one of its pillars. This does not mean that local values should override universal principles.

It means that ethical evaluation should be sensitive to context while remaining morally grounded.

6. MEC as a Computational Framework

6.1 Overview

One of the strengths of MEC is that it can be translated into a computational form. This does not mean reducing ethics to numbers in a simplistic way. Rather, it means creating a structured decision support model that helps systems and institutions evaluate ethical alignment more consistently.

6.2 Ethical representation

Let an AI decision x be represented as a six-dimensional vector:

$$M(x) = (m_{UP}, m_{CT}, m_{MV}, m_{IC}, m_{AM}, m_{FE})$$

Each component is normalized to a value between 0 and 1, where 0 indicates ethical misalignment and 1 indicates full alignment. This makes it possible to compare decisions across different contexts while still preserving the structure of the MEC framework.

6.3 Ethical score function

The Ethical Score Function, ESF, aggregates these six components into a single weighted score:

$$ESF(x) = \sum_{i=1}^6 w_i m_i(x)$$

with the conditions:

$$w_i \geq 0, \sum_{i=1}^6 w_i = 1$$

The weights reflect the relative importance of each pillar in a particular domain. In healthcare, for example, universal principles and accountability mechanisms may receive greater weight because of safety and responsibility concerns. In social media or generative AI, cultural traditions and foresight ethics may deserve more emphasis because of cultural sensitivity, misinformation, and long-term impact (Garole, 2025; OECD, 2019; UNESCO, 2021).

6.4 Ethical thresholding

To prevent performance from overriding ethics, the framework introduces a minimum threshold:

$$ESF(x) \geq \theta$$

If the score falls below the threshold, the decision should be revised, delayed, or rejected. This gives ethical evaluation real force inside AI decision making.

6.5 Ethical risk

Ethical risk is defined as the inverse of ethical alignment:

$$ER(x) = 1 - ESF(x)$$

This offers a simple but useful way to track vulnerability. A lower ESF indicates a higher ethical risk.

6.6 Temporal weighting

The weights used in ESF should not be fixed in all cases. They should vary according to domain, risk level, and social impact. High risk environments require stronger ethical weighting. This makes the model adaptable rather than rigid.

For example, in healthcare, UP should carry more weight because of non-harm and safety. In social media, AM and FE should be emphasized because of accountability and long-term societal consequences. In financial systems, IC and AM may need greater importance because compliance and traceability are critical. In public administration, UP and MV are especially important because decisions often affect rights and access.

6.7 Temporal decomposition

The ESF can also be understood in temporal layers:

- Timeless: UP
- Past: CT
- Present: MV, IC, AM
- Future: FE

This decomposition is useful because it keeps the ethical evaluation balanced across time. It prevents systems from focusing only on immediate compliance while ignoring historical bias or future harm.

6.8 Adaptive ethical learning

Ethical norms change, and AI systems should be able to respond to those changes. MEC therefore includes a feedback mechanism:

$$MEC(t+1) = MEC(t) + \eta \cdot \text{Feedback}$$

Here, η is the learning rate. This means the framework can evolve as new evidence, audits, and stakeholder concerns emerge. In this way, ethics becomes a living part of the system rather than a fixed external rule.

6.9 Illustrative example

Consider an AI hiring decision with the following scores:

- UP = 0.90
- CT = 0.70

- MV = 0.80
- IC = 0.85
- AM = 0.75
- FE = 0.80

With weights of 0.25, 0.15, 0.15, 0.15, 0.15, and 0.15 respectively, the ESF becomes 0.815. If the ethical threshold is set at 0.75, the decision is ethically acceptable. This illustrates how the framework can be used in practice to evaluate not just whether a model performs well, but whether it performs responsibly.

6.10 Ethical decision algorithm

A MEC based ethical evaluation can follow a simple workflow:

1. Normalize all MEC scores.
2. Assign domain specific weights.
3. Compute the ESF.
4. Compare the result with the threshold.
5. Accept the decision if the score meets the threshold. Otherwise revise it.
6. Compute the ethical risk score.
7. Update the model through feedback.

This algorithm can be embedded into governance dashboards, audit systems, or decision support tools.

7. Domain Applications

7.1 Sentiment analysis

Sentiment analysis often struggles with sarcasm, dialect, context, and cultural nuance. By integrating cultural traditions and moral values, the model can better interpret language in socially sensitive ways and reduce misclassification. This is particularly important in multilingual and culturally diverse settings, where literal interpretation can easily distort meaning.

7.2 Bias detection and mitigation

Bias is often rooted in historical data. Cultural traditions help systems recognize that data reflect social history, not neutral reality. Foresight ethics adds a preventive dimension by anticipating how present bias may shape future exclusion. This is particularly useful in domains such as hiring, lending, criminal justice, and education (Mehrabi et al., 2021).

7.3 Explainable AI

Explainable AI is often judged by how understandable its outputs are. MEC broadens this by asking whether the explanation is ethically meaningful. Moral values and institutional codes help

explanations become both transparent and normatively grounded.

7.4 AI governance platforms

Governance platforms need strong accountability structures. Institutional codes and accountability mechanisms are especially important here because they support traceability, auditability, and responsibility (Floridi et al., 2018; Jobin et al., 2019).

7.5 Privacy and data protection

Privacy is often treated as a legal issue alone. MEC places it on a deeper moral foundation by connecting it to universal principles and moral values, especially dignity, autonomy, and informed consent.

7.6 Regulatory compliance software

Compliance systems can benefit from foresight ethics because regulations change and social expectations evolve. A system that only checks current rules may miss emerging risks.

7.7 Ethical AI consulting

Consultants can use MEC as a diagnostic tool to assess ethical maturity across six dimensions. This moves consulting away from checklists and toward structured ethical evaluation.

7.8 Healthcare AI

Healthcare demands especially high ethical caution. Here, safety, non-harm, accountability, and long-term responsibility are essential. MEC is useful because it brings all of these dimensions into one framework.

7.9 Education and public services

AI in education and public services should be evaluated not only for efficiency but also for fairness, inclusion, and social impact. MEC helps ensure that these systems remain responsive to diverse human contexts.

8. Case Study: Generative AI Systems

8.1 Ethical significance

Generative AI is a strong case for MEC because its outputs can spread quickly, be reused widely, and create long lasting consequences. Harm in this area may include misinformation, cultural insensitivity, stereotyping, privacy leakage, and harmful amplification.

8.2 MEC application

MEC addresses these risks layer by layer. Universal principles constrain harmful outputs.

Cultural traditions improve cultural sensitivity. Moral values guide responsible generation. Institutional codes ensure legal and organizational compliance. Accountability mechanisms support traceability and review. Foresight ethics helps anticipate misuse and future harm.

8.3 Evaluation beyond fluency

This means generative AI should not be judged only by fluency or coherence. It should also be judged by ethical trajectory, that is, what kinds of effects it may produce over time, across different communities, and in different settings. A generative model may appear harmless in a limited test environment but still create wider harm once it is integrated into search, education, customer service, or content generation. The rapid spread of synthetic text, images, and audio means that even small ethical weaknesses can scale quickly. MEC helps counter this by requiring broad ethical review before deployment and continuous monitoring after deployment.

8.4 Broader concerns

Generative AI also raises questions of authorship, originality, attribution, and manipulation. These are not only legal questions. They also involve moral responsibility and public trust. MEC can help organizations evaluate whether a system produces outputs that are not only useful but also respectful of human dignity and social context.

9. Discussion

9.1 Theoretical contribution

The MEC framework contributes to AI ethics in three important ways. First, it shifts the focus from static compliance to dynamic ethical reasoning. Second, it brings time into the centre of ethical evaluation by connecting the past, present, and future. Third, it offers a computational structure that can be used in real systems.

9.2 Practical significance

This makes the framework especially useful for AI systems that are data driven, adaptive, and socially influential. It also aligns with the broader direction of current ethical AI work, which emphasizes fairness, accountability, transparency, and human oversight. MEC extends this direction by adding moral continuity and temporal depth.

9.3 Cross disciplinary value

The framework also has practical value because it can speak to different audiences. For researchers, it offers a conceptual model. For developers, it offers a decision support structure. For managers, it offers a governance tool. For policymakers, it offers a way to think about regulation across time. This cross-disciplinary utility makes MEC especially relevant to modern AI ecosystems.

9.4 Remaining challenges

At the same time, the framework has limits. Ethical concepts such as dignity, fairness, and cultural sensitivity are difficult to quantify exactly. Weight assignment will also vary across domains and cultures. For this reason, MEC should be understood as a decision support framework rather than a final moral authority. Its purpose is to structure ethical reflection, not replace it.

9.5 Transparency and legitimacy

Another important issue is legitimacy. If ethical scores are to guide real decisions, institutions must explain how they are calculated, how thresholds are chosen, and how disagreements are resolved. Without transparency, even a strong ethical model can become another layer of opacity. Human oversight and public accountability remain essential.

9.6 Organizational culture

A further point concerns organizational culture. Even the best framework will not work well in a setting that treats ethics as a formal requirement rather than a serious commitment. For MEC to be effective, institutions must build a culture of reflection, review, and responsibility. Ethics must be treated as part of quality, not as an external burden.

10. Limitations of the Proposed Framework

10.1 Approximation of moral reality

MEC is promising, but it is not without limitations. First, ethical scoring can only approximate moral reality. Second, different domains will require different weights, and there is no universal formula for all settings. Third, the framework still needs empirical validation to show that it improves ethical outcomes in practice.

10.2 Stakeholder conflict

There is also the question of stakeholder conflict. What seems ethically acceptable to one group may not appear so to another. MEC cannot

remove this tension, but it can help make it visible and manageable. That is an important strength in itself.

10.3 Human judgment

Another limitation is that ethical evaluation can become overly formal if it is not paired with human judgment. A score alone cannot capture the full moral texture of a decision. It should therefore be used as a support mechanism, not as an automatic ethical verdict. Human interpretation remains necessary.

10.4 Implementation cost

There is also the challenge of implementation cost. Building ethical dashboards, review systems, and monitoring processes requires time, expertise, and institutional commitment. Smaller organizations may find this difficult at first. However, the long-term cost of ethical failure is usually much greater. MEC should therefore be seen as an investment in responsible governance.

11. Policy and Practice Implications

11.1 Policy implications

The MEC framework has several implications for policy and practice. Policymakers should incorporate foresight ethics into AI governance so that regulation addresses long term risk, not only present compliance. Organizations should integrate MEC across the AI lifecycle, from design to deployment and monitoring. Developers should use ESF based ethical checks as part of model evaluation. Researchers should operationalize each MEC pillar into measurable indicators and test the framework empirically. Society should promote AI literacy, accountability awareness, and public participation in AI governance.

11.2 Ethical review

One practical implication is that ethical review should become routine rather than exceptional. High risk systems should undergo structured moral assessment before deployment, and that assessment should be repeated at intervals after deployment. This would help institutions identify changes in social impact, error patterns, and stakeholder concerns.

11.3 Education and training

Another implication is that ethics should be included in technical education. Developers, data scientists, and system designers often receive extensive training in optimization, performance, and

architecture, but less training in moral reasoning and social impact. MEC can contribute to a more balanced educational approach by giving technical professionals a language for ethical evaluation.

11.4 Institutional governance

Organizations should also create internal ethical review boards for high-risk systems. These boards can use MEC as a shared language across technical, legal, and policy teams. Training programs should help developers understand not only how AI works, but also how it affects people and institutions.

11.5 Public communication

A further implication concerns public communication. If AI systems are to be trusted, the public must be given meaningful information about how they work, what ethical standards they follow, and how concerns can be raised. MEC supports this by encouraging clarity, accountability, and traceability.

12. Future Research Directions

12.1 Measurement and validation

Future work should focus on four areas. First, each MEC pillar should be translated into measurable indicators. Second, the model should be tested in real world domains such as healthcare, finance, education, and public services. Third, weight selection should be refined through expert judgment, stakeholder consultation, or multi criteria methods. Fourth, the framework should be extended to multi agent and human in the loop systems, where ethical coordination becomes more complex.

12.2 Prototype development

A practical next step would be to build a working prototype, such as a dashboard or governance plugin, that allows real time scoring of AI decisions using MEC. This would move the framework from theory into practice.

12.3 Comparative research

Future research can also explore how MEC interacts with existing governance models. For example, it would be useful to compare MEC with fairness toolkits, risk management frameworks, and audit-based compliance systems. Such comparative analysis could show whether MEC offers additional explanatory power or operational value.

12.4 Cross cultural validation

Another valuable direction is cross cultural validation. Since MEC explicitly includes cultural

traditions, its assumptions should be examined across different regions and institutional settings. This would help determine which aspects of the framework are universal and which require local adaptation.

12.5 Behavioural studies

Researchers may also investigate the psychology of ethical decision making. If MEC is to influence real institutions, it should align not only with policy logic but also with how people actually reason about responsibility, trust, and risk. This would strengthen the framework's practical relevance.

13. Conclusion

This paper has proposed a temporal and computational framework that integrates the Moral Ethical Compass with contemporary AI ethics. By combining universal principles, cultural context, moral values, institutional codes, accountability, and foresight, MEC offers a richer foundation for responsible AI.

The Ethical Score Function makes this framework operational by translating ethical reasoning into a structured evaluative model. The result is an approach to AI ethics that goes beyond compliance and toward ethical intelligence. As AI continues to shape human life in deeper ways, such a framework can help ensure that these systems remain not only effective, but also responsible.

The larger message of this paper is simple. Responsible AI cannot be built on technical performance alone. It requires a moral architecture that can guide action across time, context, and institution. MEC offers one way to build that architecture.

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