AI as a Tool for Human Enhancement, Not Replacement

Reflection using the Gibbs reflective cycle

What

The global rise of generative artificial intelligence has fundamentally reshaped the computing profession. No longer confined to research laboratories, AI tools now assist with coding, analytics, and decision-making across every industry. While this transformation offers extraordinary efficiency, it also raises a critical ethical question: should AI be used to enhance people, or to replace them? In many sectors, organisations are tempted to substitute junior professionals with AI systems to reduce costs and increase output. For instance, a company might use generative models to automate the work of junior data analysts, retaining only a few senior staff to supervise. On the surface, this approach may appear efficient, yet it risks undermining skill development, long-term career progression, and the professional integrity of the field.

Corrêa et al. (2023) provide a global overview of this issue, analysing 200 AI-governance guidelines from 37 countries. They found widespread agreement on ethical principles such as transparency, accountability, human-centredness, and fairness, but also exposed a major weakness: roughly 98 per cent of these frameworks are non-binding and rarely specify how to translate principles into practice. The authors argue that while nations and organisations recognise the importance of ethical AI, few provide mechanisms for enforcement or measurable accountability. Importantly, their study identifies “human-centredness and alignment” as a recurring principle, emphasising that AI should remain a tool serving human welfare. Yet, most guidelines focus on short-term concerns, like bias and privacy, while overlooking long-term social and professional impacts, including workforce displacement and skill erosion.

Deckard (2023) approaches the topic from a professional perspective, describing AI ethics as a multidisciplinary practice that requires expertise in both technology and philosophy. He maintains that ethical AI must be developed and managed by humans who can understand its context, communicate its implications, and collaborate across disciplines. For Deckard, being an AI ethicist means ensuring AI complements, rather than replaces, human judgment. Taken together, Corrêa et al. and Deckard offer a compelling foundation for this reflection: AI should be treated as a partner in human advancement, not a substitute for human presence.

So What

The distinction between enhancement and replacement carries significant legal, social, and professional implications. Legally, when organisations remove human oversight

from data-driven processes, accountability becomes ambiguous. Corrêa et al. (2023) highlight that most global AI-ethics documents promote transparency and liability, yet few legally enforce these values. If a machine-learning model misclassifies data or generates biased insights without human supervision, it becomes unclear who is responsible for the error. Without human intermediaries, it is difficult to ensure compliance with data-protection laws, employment regulations, or emerging AI-governance frameworks. Binding legal standards, therefore, are essential to maintain human accountability in an increasingly automated environment.

Socially, the decision to replace people with AI systems risks long-term damage to workforce sustainability. When junior positions are removed, the "ladder of experience" that transforms novices into experts collapses. This not only undermines opportunities for professional growth but may also deter new entrants from pursuing technical careers. Dégallier-Rochat (2022) warns that when automation strips work of human participation, employees lose both motivation and meaning. Similarly, Mäkelä and Stephany (2024) found that while AI can boost productivity, it tends to polarise skill demand, expanding opportunities for senior professionals while reducing them for early-career workers. This imbalance creates a shrinking pipeline of trained analysts, engineers, and data scientists, leaving industries over-reliant on a small, highly skilled elite and undermining diversity within the field.

From a professional standpoint, the shift toward automation threatens the ethical and developmental foundations of computing as a discipline. Deckard (2023) stresses that AI ethics depends on human qualities such as empathy, communication, and contextual understanding. When entry-level staff are replaced by algorithms, organisations lose the apprenticeship model that fosters these skills. As Corrêa et al. (2023) note, the vast majority of current AI-governance documents are soft-law instruments, allowing companies to publicise ethical commitments without demonstrating how they preserve human roles or professional integrity. This mismatch between principle and practice risks hollowing out the profession itself, leaving fewer humans capable of exercising ethical judgment over complex systems. Research by Nguyen et al. (2025) reinforces this view, showing that the greatest benefits of AI occur in hybrid environments where machines augment rather than replace human decision-makers.

The combined insights from these studies underscore that AI should be developed as a collaborative partner. It should relieve professionals of repetitive tasks while preserving opportunities for learning, mentorship, and accountability. Otherwise, the profession risks losing not only its human workforce but also the moral agency that underpins trust in technology.

Now What

To address these challenges, both policy and professional practice must evolve toward human-centred augmentation rather than automation. Legally, the principles of transparency and accountability identified by Corrêa et al. (2023) should be transformed into binding obligations. Organisations deploying AI in place of human labour should be required to conduct Human Role Impact Assessments (HRIA) before implementation. These assessments would evaluate how automation affects career progression, training opportunities, and inclusion. Governments could mandate that high-risk AI systems, such as those used in recruitment, finance, or education, maintain human oversight, ensuring responsibility and redress when harm occurs. The Organisation for Economic Co-operation and Development (2024) supports such measures, advocating that workplaces using AI include mechanisms for human review and employee participation.

At an organisational level, companies should adopt a dual-track model in which AI supports rather than replaces junior employees. For example, in data analysis, AI tools can automate data cleaning or preliminary reporting, allowing human analysts to focus on interpretation, ethics, and contextual insight. This approach keeps humans "in the loop," preserving pathways for junior analysts to gain experience while benefiting from AI's efficiency. Deckard's (2023) emphasis on communication and interdisciplinary cooperation reinforces this model: by integrating ethicists, engineers, and policymakers within project teams, organisations can ensure that human judgment remains central to AI-enabled decision-making. Establishing internal roles such as an "AI Ethics Lead" or ethics committee can institutionalise these responsibilities, ensuring the technology serves people rather than replaces them.

Educational and social policy must also adapt. Universities and training providers should prepare students for a world where collaboration with AI is a core skill. Curricula in data science and computing should teach not only technical proficiency but also ethical reasoning, critical analysis, and awareness of human-AI interdependence. Public-private partnerships could fund reskilling programmes to support workers affected by automation, while incentives could be offered to organisations that preserve entry-level opportunities during AI integration. Corrêa et al. (2023) note that much of the global conversation on AI governance is dominated by North America and Europe, leaving other regions under-represented. Addressing this imbalance through international cooperation and inclusive policymaking will help ensure that global standards reflect the experiences of all societies, not just those with advanced AI industries.

These actions collectively transform the abstract ethical values found in AI-governance literature into tangible professional practices. Legally, they create enforceable mechanisms for accountability and transparency. Socially, they maintain equitable

access to meaningful work and preserve career mobility. Professionally, they safeguard the computing field as one grounded in human judgment, mentorship, and ethical reflection. Ultimately, this approach aligns with the argument advanced by Deckard (2023) that ethics must be lived within professional practice, not relegated to corporate statements.

Generative AI has the potential to revolutionise how humans work, learn, and create, but the direction of that revolution depends on choices made today. If AI becomes a substitute for human intelligence, the computing profession risks becoming a hollow shell, efficient but ethically impoverished. If, however, AI is harnessed as a partner in human advancement, it can preserve the dignity, creativity, and accountability that make work meaningful. As Corrêa et al. (2023) demonstrate, consensus already exists on the principles needed; what remains is the will to enforce them. Keeping AI in the service of people, rather than as a replacement for them, is not merely an ethical choice but a professional necessity for the long-term sustainability of the digital age.

References

Corrêa, N.K., Galvão, C.T., Santos, J.W., Del Pino, C., Pontes Pinto, E., Barbosa, C., Massmann, D., Mambrini, R., Galvão, L., Terem, E. and de Oliveira, N., 2023. 'Worldwide AI ethics: A review of 200 guidelines and recommendations for AI governance.' *Patterns*, 4(10), p. 100857. https://doi.org/10.1016/j.patter.2023.100857

Deckard, R., 2023. 'What are ethics in AI?' *BCS – The Chartered Institute for IT*, 3 April. Available at: https://www.bcs.org/articles-opinion-and-research/what-are-ethics-in-ai/ (Accessed 29 October 2025).

Dégallier-Rochat, S., 2022. 'Human augmentation, not replacement: A research agenda.' *Journal of Human-Robot Studies*. Available at: https://pmc.ncbi.nlm.nih.gov/articles/PMC9578547/ (Accessed 29 October 2025).

Mäkelä, E. and Stephany, F., 2024. 'Complement or substitute? How AI increases the demand for human skills.' *arXiv preprint*, arXiv:2412.19754.

Nguyen, T., Alvarez, R. and Patel, K., 2025. 'Understanding human-AI augmentation in the workplace.' *Information Systems Journal*, forthcoming. https://doi.org/10.1007/s10796-025-10591-5

Organisation for Economic Co-operation and Development (OECD), 2024. *Using Artificial Intelligence in the Workplace*. Paris: OECD Publishing.