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SIMULATING FEAR RESPONSES IN EVOLUTIONARY COMPUTATION (EC): A FEARISM APPROACH TO ADAPTIVE AI SYSTEMS

Ramala Sarma*

Abstract: In computer science, evolutionary computation (EC) is a research area miming biological evolution through various evolutionary algorithms (EA). Fearism is a philosophical framework of recent origin developed predominantly by R. Michael Fisher and Desh Subba that emphasizes the crucial role of fear in shaping human behaviour, culture and social structures. This research attempts to combine these two areas of study, EC and fearism, to enhance the adaptability and decision-making of artificial intelligence (AI) systems. By studying the theoretical foundations of EC and fearism, the work proposes a new approach to simulating fear responses within adaptive AI systems that can respond to dynamic and unexpected situations of life in a human-like manner. The study finds that a nuanced understanding of the ethical implications of fear in the context of AI can help AI designers use fear as a constructive force in the evolutionary processes. The study, however, does not claim to provide any empirical models but a philosophical approach.

Keywords: Fear, Fearism, Evolutionary Computation, AI, Fear Simulation, Adaptive AI, Decision-making of AI

1. Introduction

The advancement of artificial intelligence (AI) depends on its

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* Dr. Ramala Sarma is an Assistant Professor of Philosophy at Nowgong College (Autonomous). Her research focuses on Yoga, Buddhism and Transhumanism. A prolific scholar, she has published extensively and contributed as a reviewer for various academic journals. ORCID ID: 0000-0003-0269-7852 | Email: ramalasarma@gmail.com.

ability to adapt to complex environments. Evolutionary computation (EC), inspired by natural evolution, plays a key role in this adaptability. Evolutionary algorithms (EAs), particularly genetic algorithms, mimic biological processes to enhance AI behaviour, making systems more adaptive and resilient. EC has proven successful in solving real-world optimization problems (Sarker et al. 311), yet it largely overlooks psychological and philosophical factors influencing human adaptability, notably fear.

Fear, a fundamental aspect of survival and decision-making (Adolphs R79), shapes human responses to threats, uncertainty, and change. Traditionally confined to psychology, fear gained broader significance with the philosophy of fearism, developed by R. Michael Fisher and Desh Subba. This framework views fear as an integral force in human behavior, capable of fostering resilience and innovation. The integration of emotions into AI is not new, yet research has mostly treated emotions as external to logical decision-making. Emotion AI, which includes techniques like EEG-based emotion recognition (Kamble and Sengupta 27269) and AI-driven emotion assessment in education and healthcare (Khare et al.; El-Tallawy et al. 295), and assessing emotions in learning environments (Vistorte et al.), remains focused on detection rather than leveraging emotions for adaptability. Current AI models lack the capacity to incorporate emotions as an active factor in decision-making, despite their potential to enhance adaptability in dynamic environments. Addressing this gap requires a focus on emotional intelligence, ethical concerns and organizational influences in AI decision-making (Shukla et al.). While sentiment analysis and emotion detection have advanced, digital emotion expressions in knowledge-based activities remain inadequately understood (Gamage et al.). To tackle this, Gamage et al. propose a new AI model for precise, multi-layered emotion detection.

Despite these developments, there is little research on how emotional and psychological drivers, particularly fear, can be integrated into evolutionary algorithms. Drawing from fearism principles, this study explores how AI systems can be designed to better navigate uncertainty and change. The research is qualitative, based on literature and discussions with Fisher and Subba, aiming to establish a theoretical foundation for integrating fear into AI rather than focusing on technical implementations.

2. Theoretical Foundations

The theoretical foundations of this study lie at the intersection of EC and fearism, each dealing with adaptability and decision-making from unique perspectives. EC offers a computational framework for enhancing AI behaviour through systems inspired by natural selection, while fearism provides a philosophical lens to recognize fear as a driving force in behaviour. The amalgamation of these fields proposes a new approach to developing AI systems by integrating emotional and psychological aspects into their adaptive processes.

2.1. Evolutionary Computation (EC) in AI

Evolutionary computation (EC) is an AI research area that employs algorithms inspired by natural evolution. It models Darwinian selection to develop adaptive systems (Eiben and Smith 24). Key methods include evolution strategies, evolutionary programming, genetic algorithms (GA) and genetic programming. These algorithms test, select, mutate, and recombine solutions to improve AI performance over time. Genetic algorithms, pioneered by John Holland, are search algorithms based on natural selection (Goldberg 1; Katoch et al. 8092). GA components include chromosome encoding, fitness function, selection, recombination, and evolution schemes (McCall 206). They refine solutions through biological-like reproduction, discarding weaker candidates while enhancing stronger ones, optimizing AI adaptability.

Optimization drives human progress through self-improvement (Kelley 19). Evolutionary computation (EC) excels in complex, high-dimensional problems without requiring a gradient, avoiding local optima. However, it overlooks psychological and emotional factors, particularly fear, which influences decision-making in uncertainty. Traditional evolutionary algorithms (EA) focus on computational fitness but ignore human adaptability. Since AI aims to address real-world challenges where emotions play a key role, integrating fear studies into EC is crucial. This could enhance AI's robustness, making it more aligned with human cognition and decision-making in uncertain environments.

2.2. Framework of fearism

Fearism, developed by Subba and Fisher, is a philosophical framework that views fear as a central organizing force in human life. It extends beyond an emotional reaction to threats, shaping behavior, cultures, and societal structures. Fear is not just limiting but also a motivator for survival, adaptation, and creativity. It influences social norms, cultural practices, and technological advancements. Subba ("Philosophy of Fearism", 14) equates fear with fundamental drives like hunger and thirst, asserting that it directs human life ("Philosophy of Fearism", 186). Beyond basic survival, fear has shaped politics, inventions, technology, trade, and finance ("*Fearmorphosis*", 127; "Trans Philosophism", 198-203). He describes his philosophies of Fearism and Trans Philosophism as two perspectives through which life can be analyzed ("*Fearmorphosis*", v). Understanding fear's role is crucial in addressing modern challenges amid rapid technological advancements and increasing collective anxieties ("Philosophy of Fearism", 332-333).

Fisher ("Report on the") argues that fear is no longer just an emotion. He calls the 20th century the "century of fear" ("Invoking 'Fear'", 43) and describes fearist discourse as psycho-cultural, political, and ideological ("Philosophy of Fearism", 18). He conceptualizes fear as a worldview, or "culture of fear" ("Culture of 'Fear'", 7), shaping perception and interactions. His "fearology of fear" is a transdisciplinary study complementing psychology. He introduces fear management systems (FMS) to transform fear through cultural insights and historical teachings on "fearlessness." This does not mean fear's absence but engaging with it through understanding, confrontation, and resilience. Fisher advocates integrating these systems into education and society to reduce today's pervasive fear culture. Fearism aligns with existentialist and psychoanalytic traditions, where fear is tied to mortality, the unknown, and control limits. Kierkegaard viewed anxiety (a form of fear) as essential for freedom and self-realization, describing it as the "dizziness of freedom," necessary for growth. Freud (12) saw fear as a driver of neurosis and repression. Within EC, fearism offers a fresh perspective on embedding fear into AI systems.

3. Practical Insights and Potential Applications

Embedding fear factors in AI systems, particularly in evolutionary computation (EC), has significant implications for adaptability, risk management and decision-making in uncertain environments. Fields such as autonomous systems, healthcare, military defense, cybersecurity and disaster management could benefit from this approach. In autonomous systems like self-driving vehicles and robotics, simulating fear can enhance the ability to foresee and evade dangers, ensuring reliability and safety. For instance, self-driving cars, often met with skepticism (Cugurullo & Acheampong 1569-1570), could use fear-driven algorithms to exercise caution in hazardous conditions like bad weather, reducing accidents. The vulnerabilities of autonomous vehicles necessitate integrating emotional intelligence and fear responses (Giannaros et al. 498). Moreover, fear simulation could reduce user anxiety toward automated driving systems (Meinlschmidt et al.), ensuring they operate in ways that reassure users.

In healthcare, integrating fear into AI systems could improve adaptability, diagnostic responsiveness, and ethical considerations. AI-powered diagnostic tools could use fear-based algorithms to identify high-risk symptoms, prompting earlier intervention. Additionally, addressing patient concerns about AI in healthcare—such as data security, bias, and patient autonomy—is crucial (Richardson et al.). Fear-aware AI could also help enhance healthcare professionals' expertise by incorporating caution into medical decision-making. The military and defense sectors could benefit significantly from fear-based AI algorithms, especially for strategic decision-making in high-risk scenarios. These algorithms could enhance autonomous systems' ability to assess and respond to threats, including cyberattacks (Bistron & Piotrowski). Research on public perceptions of AI in defense (Hadlington et al.) highlights the importance of designing AI that mitigates public fears.

In cybersecurity, AI algorithms must continuously adapt to evolving threats. Fear-based AI could strengthen defense mechanisms by prioritizing responses to high-risk cyber threats and managing complex security challenges (Das & Sandhane). Similarly, AI-driven disaster response systems could improve risk assessment and emergency management by providing authorities with early warnings about potential crises (Bari et al.). Fear-sensitive AI in disaster management could enhance public resilience and response capabilities (Gupta et al.). Experts like Subba and Fisher caution against AI's potential dominance over human intelligence. Subba asserts that fear will increasingly shape human intelligence, making it essential for AI systems to integrate this factor. Fisher, in an email response, expressed concerns about AI lacking ethical foundations, reinforcing the need for fear-aware AI that aligns with human wisdom.

4. Fear Responses and Ethical Considerations

According to Subba and Fisher, fear must be understood as a universal principle governing human life. Given its pervasiveness, Fisher (00:36:00–00:39:51) recommends Fear(ism) as a transdisciplinary study. In email exchanges, Subba emphasized fear's dominance, asserting that no intelligence, regardless of its strength, can exist outside its influence. Fisher provided a more detailed response, highlighting concerns about AI's growing presence, its mechanistic worldview, flawed design, and lack of ethical considerations. To understand his perspective on simulating fear in evolutionary computation (EC), his broader view of AI must be considered.

AI systems have inherent limitations, including ethical constraints, emotional disconnect, bias, errors, pathological design and weaponization. Fisher argues that AI, as it currently exists, is a minimal and flawed form of intelligence incapable of fostering healthy and sustainable lives. AI reflects both the strengths and weaknesses of its creators, inheriting their biases and limitations like genetic and memetic coding. He critiques AI for being an artificial, mechanized construct that lacks ethical foundations, leading to a systematic attack on the organic world. AI's reliance on quantitative methods over qualitative experiences, exacerbated by the digital revolution, distorts reality. Fisher warns against mistaking AI-generated information for real life, likening it to historical distortions of teachings by great spiritual leaders. He sees AI as an ethically deficient tool manipulated for profit and control, weaponized within a fear-driven techno-capitalist culture.

Fear plays a dual role in human psychology: as both a potential pathology and a survival mechanism. Fisher and Subba's framework of Fear(ism) posits that fear is more than an emotion; it is an inescapable phenomenon shaping individual behavior and culture. Integrating fear responses into EC could enhance AI adaptability and robustness, but a nuanced understanding of fear's dual role is crucial to avoid unintended consequences. Fisher suggests embedding fear in AI design in a way that ensures both defense and ethical responsibility. AI should recognize threats while avoiding excessive self-preservation instincts that could compromise broader ethical considerations. This approach aligns with Subba's view that fear, essential for survival, must be balanced with wisdom to prevent harm to humanity.

Practically, applying this model means designing AI systems capable of recognizing threats and responding appropriately while considering ethical implications. The primary concern of Fearists is ensuring that human values and morality remain central to technological advancements. Fear-based AI models should not only be resilient but also uphold human ethical standards. Ethical concerns are paramount in AI development, and the works of Fisher and Subba provide a critical lens for examining these issues. Fisher argues that AI lacks ethical standing by design, as it operates on a survival instinct akin to what he calls Defense Intelligence—a basic form of fear. Every system has a right to self-preservation, but if it becomes too dominant and disconnected from reality, it risks becoming unethical and harmful. Fisher warns that such systems may require modification or even abolition.

Subba asserts that human wisdom, rooted in ethics, surpasses any AI-generated intelligence, which lacks ethical foundations. He warns against AI surpassing human intelligence in ways that undermine ethical considerations. Fisher notes that all systems, including AI, struggle with the concept of mortality, reflecting a broader human tendency to defy natural law. Like humans, AI possesses a deep-rooted fear of death, which can lead to unhealthy, fear-driven behaviors. He suggests integrating Fearist analysis to ensure AI systems are not guided by a fear of death but instead adopt a "Fearlessness" paradigm (Fisher, "World's Fearlessness" 6). Managing fear is a natural process, and fearlessness, rather than opposing progress, is a dynamic force integrated into evolution. Fisher advocates for embedding fear-management strategies into AI to create systems that are not only technologically advanced but also ethically responsible and trustworthy. By integrating the principles of Fearism into AI development, AI can be designed to operate within ethical boundaries, prioritizing service to humanity over potential threats.

5. Conclusion

Fearism is a new philosophy centered on fear, a primal yet pervasive emotion. Fearists argue that fear is fundamental to social, ethical, and spiritual life. In AI, fear serves as a trigger but is often overlooked in system development. While fearism prioritizes fear as a driving force, AI optimization relies on it as a survival mechanism. Transhumanism, a movement for human enhancement, seeks to elevate humans beyond fear through technologies like AI, robotics, and genetic engineering (Sarma 249-250). However, if AI aims for meaningful intelligence through evolutionary computation, can it truly achieve this without integrating fear? Incorporating fear responses into AI presents both opportunities and challenges. Fisher and Subba's insights suggest a model where AI adapts to fear while maintaining ethical responsibility. This requires balancing technical and ethical dimensions to ensure resilience and responsibility. Fearism's vision of emotionally aware and ethically grounded AI is promising, but achieving it demands a multidisciplinary approach. Collaboration among experts in psychology, philosophy, neuroscience, computer science and transhumanism is essential to designing AI systems that integrate fear constructively while supporting human well-being.

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