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Neuroticism and Artificial Intelligence Anxiety. The mediating role of Illusory Beliefs

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ABSTRACT:
This study examines how Neuroticism influences AI anxiety and explores the mediating role of Illusory Beliefs in this connection. As AI technologies quickly advance and become more integrated into workplaces, education, and daily decision-making, addressing AI anxiety is essential for promoting technological adaptation and reducing unnecessary fears.
A total of 197 participants (32 males and 165 females) completed surveys measuring self-reported levels of Neuroticism, AI anxiety, and Illusory Beliefs. The data were collected through Google Forms using structured questionnaires, including the Neuroticism Scale, the Artificial Intelligence Anxiety Scale (AIA), and the Illusory Beliefs Inventory (IBI).
The findings showed significant positive correlations between Neuroticism and AI anxiety ($r = .301$, $p < .01$), Illusory Beliefs and AI anxiety ($r = .331$, $p < .01$), and Neuroticism and Illusory Beliefs ($r = .309$, $p < .01$). These findings suggest that individuals reporting higher levels of Neuroticism are more prone to experiencing AI anxiety, likely influenced by their tendency toward Illusory Beliefs. Furthermore, Illusory Beliefs emerged as a strong mediator in the relationship between Neuroticism and AI anxiety.
A deeper understanding of the role of Neuroticism and Illusory Beliefs in influencing perceptions of AI, particularly AI anxiety, can provide valuable insights for designing targeted interventions aimed at reducing fear, correcting cognitive distortions, and promoting a more balanced and adaptive perception of AI technologies.

Keywords: neuroticism, artificial intelligence, anxiety, illusory beliefs, mediation

1. Introduction

Falling under the broad umbrella of Artificial Intelligence (AI), technologies like Machine Learning, Big Data analytics, Deep Learning, and Neural Networks have gained increasing attention in the last decade from both academia and industry. These tools represent advanced computational techniques designed to boost organizational performance through greater efficiency, better decision-making, and stronger predictive capabilities (Alsheibani, Cheung, & Messom, 2018). The widespread adoption and integration of AI into core business functions—ranging from automated customer support and targeted marketing to data-driven forecasting and streamlined logistics—have led to fundamental changes in how organizations operate and compete. This rapid technological progress has not only transformed internal workflows but also heightened public discussion about AI's role in modern society, as companies increasingly aim to leverage its potential to foster growth, innovation, and profitability (Bourne, 2019). At the

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same time, the rise of AI has raised important ethical, legal, and social issues, including concerns over data privacy, displacement of human labor, algorithmic bias, and the broader consequences of delegating complex decisions to machines.

The transformative impact of Artificial Intelligence (AI) on society is becoming increasingly clear and has been widely acknowledged by researchers and policymakers alike (Chen & Wen, 2021; Jones, Kaufman, & Edenberg, 2018). With AI technologies rapidly advancing and becoming embedded in everyday life —from healthcare and education to transportation, finance, and governance—their societal influence becomes more profound and far-reaching (Makridakis, 2017). This impact manifests in a variety of ways, reflecting a spectrum of perspectives and expectations. On one end, there is a strong sense of optimism and hope, with scholars and practitioners envisioning AI as a powerful tool for solving complex global problems, enhancing quality of life, reducing human error, and creating new opportunities for innovation and economic growth (Kieslich, Lünich, & Marcinkowski, 2021). Proponents highlight the potential of AI to revolutionize medicine through early disease detection, to personalize education, and to make cities more efficient and sustainable through smart technologies.

On the other hand, a growing body of literature underscores the significant challenges and potential risks posed by widespread AI adoption (Wang & Wang, 2019). These include concerns about job displacement due to automation, the exacerbation of social inequalities, the erosion of privacy, and the unclear and unregulated nature of algorithmic decision-making. Additionally, ethical dilemmas surrounding bias in AI systems, surveillance, and the use of AI in military and policing contexts have sparked critical debates about how to ensure responsible and equitable development. As such, the societal impact of AI is not monolithic but rather shaped by how these technologies are designed, implemented, and governed.

2. Literature review

Neuroticism is a core personality trait that describes an individual's general tendency to experience negative emotions and adopt a pessimistic cognitive style, often focusing on their own perceived shortcomings or vulnerabilities (Watson, 2000). People with high levels of neuroticism tend to view life events more pessimistically, exhibiting heightened emotional reactivity and persistent distress across a range of situations. This trait is not limited to fleeting mood states; rather, it represents a stable disposition that influences how people perceive and respond to the world around them.

Barlow and his collaborators (2014) provide a comprehensive definition, emphasizing that "neuroticism is typically defined as the tendency to experience frequent and intense negative emotions in response to various stressors" (pp. 344–345). These negative emotional responses span a broad spectrum, including anxiety, vulnerability to stress, impulsivity, and (subclinical) depression (Costa & McCrae, 1992). While all these affective states are associated with neuroticism, Barlow et al. note that the most prominent emphasis is typically placed on anxious and depressive mood states (p. 345), which often manifest as chronic worry, low mood, and emotional instability.

Moreover, neuroticism is closely tied to an individual's worldview and self-efficacy beliefs. Barlow and colleagues (2014) argue that people high in neuroticism often view the

world as inherently threatening and doubt their ability to cope with adversity. This perception fuels a cycle of avoidance, rumination, and emotional dysregulation, which can impair functioning in personal, social, and occupational domains.

Costa and McCrae (1992) and Goldberg (1993), leading figures in personality psychology, also conceptualize neuroticism as a stable individual difference in emotional responsiveness, particularly in reaction to perceived threats, frustration, or loss. Their work underscores the idea that neurotic individuals are more susceptible to experiencing intense emotional responses in the face of even minor setbacks or challenges. Supporting this view, Lahey (2009) notes that factor analytic studies have consistently identified strong intercorrelations among the traits that define neuroticism, including irritability, negative emotions, anxiety, impulsivity, and stress vulnerability (p. 241). These findings suggest that neuroticism is best understood as a constellation of interrelated emotional tendencies, rather than a single affective dimension.

Furthermore, Widiger (2009) emphasizes the functional consequences of neuroticism, noting that individuals high in this trait usually handle environmental stress poorly. They tend to see neutral or ambiguous situations as threatening, react disproportionately to minor frustrations, and become overwhelmed by circumstances others might handle more easily. Therefore, neuroticism is not only a predictor of personal emotional distress but also a key risk factor for various psychological disorders, especially mood and anxiety disorders.

According to Bishop and Forster (2013), neuroticism is closely associated with Trait Anxiety, with individuals exhibiting "an emotional disposition for expecting surprising negative outcomes, complemented with perceived low social support" (Kanen et al., 2022, p.3). Therefore, people high in neuroticism are more likely to see new or unfamiliar technologies as threatening, even when those technologies are neutral or beneficial. AI, especially when portrayed as autonomous, powerful, or capable of replacing human roles, may be viewed by neurotic individuals as a personal or societal threat, leading to worry and apprehension. These cognitive appraisals influence their responses to adopting AI technology (Liang & Xue, 2009; Liang et al., 2019). Furthermore, with the introduction of autonomous AI systems, decision-making authority shifts from employees to the AI, and employees are left to carry out tasks based on AI-generated directives (Cao et al., 2025). This transfer of control can trigger threat appraisal related to AI, the perceived loss of agency and control, reinforcing negative evaluations (Bond & Bunce, 2003). Moreover, as highlighted by Kanen et al. (2022), the influence of neuroticism intensifies in contexts marked by novelty and uncertainty—two defining features of AI technologies.

Furthermore, in work-related contexts, employees often derive a sense of identity, purpose, and personal value from the roles they perform. When Artificial Intelligence begins to perform tasks with capabilities that far exceed human skills, it can undermine this sense of identity and worth (Castelo, 2019). As a result, employees may feel devalued, replaceable, or obsolete, which in turn can elicit a negative appraisal of AI (Aquino & Douglas, 2003). This emotional response is not merely a reaction to technological advancement, but a deeper psychological reaction to perceived threats to self-concept and professional relevance.

As emerging technologies increasingly reshape the modern world, these psychological vulnerabilities become more significant. Bernazzani (2017) observed that

Artificial Intelligence (AI) technologies are expected to displace a large number of jobs, especially those in the "3D" category—dumb, dirty, and dangerous—referring to roles that are repetitive, physically risky, or require little thinking. These include tasks like assembly line work, mining, waste management, and certain data processing jobs, which are increasingly being automated to improve safety, efficiency, and cost savings. While automating these roles can enhance workplace safety and boost the economy, it also raises questions about the role of human labor in society. Due to the fact that AI-based technologies become more capable and widespread, there is concern that this technological shift could reduce the sense of purpose and identity that people often find in their work.

In addition to the potential loss of meaning, the rise of AI may compel individuals to adapt by changing careers and acquiring new skills. Manyika and colleagues from the McKinsey Global Institute (2017) underscore the scale of this disruption, estimating that by 2030, between 75 million and 375 million workers globally—representing approximately 3 to 14 percent of the workforce—will need to transition to entirely different occupational categories (p. 4). This mass reskilling challenge places significant pressure on educational systems, employers, and policymakers to facilitate lifelong learning and prepare workers for the demands of an AI-driven economy.

Although these transformations are expected to boost economic productivity and efficiency (Wang & Wang, 2019), they also introduce a range of psychosocial consequences, including increased uncertainty, resistance to change, and heightened levels of anxiety about the future of work. This growing unease has given rise to a phenomenon known as AI anxiety—an emotional response characterized by apprehension, worry, or fear concerning current or anticipated interactions with AI systems.

Rosen and Weil (1990) initially conceptualized this form of anxiety in the broader context of technophobia, noting that individuals may experience negative thoughts and discomfort when confronted with new technologies. Building on this idea, Johnson and Verdicchio (2017) define AI anxiety more specifically as the fear or unease stemming from concerns that AI might become uncontrollable, surpassing human oversight and acting in ways that conflict with human values or intentions. This fear is not merely speculative; both media portrayals and real-world developments in autonomous systems, deep learning, and robotics contribute to shaping it.

Importantly, research has shown that anxiety toward AI can have a dual effect. While it may inhibit the adoption and use of AI technologies due to emotional aversion, it can also act as a motivating factor, encouraging individuals to become more informed and cautious about their interactions with AI (Wang, 2007). Nevertheless, Johnson and Verdicchio (2017) emphasize that persistent fear and distrust can significantly hinder meaningful engagement with AI, especially if individuals perceive the technology as opaque, uncontrollable, or misaligned with human interests.

Additionally, the media can significantly amplify the fear of artificial intelligence through various storytelling methods. These portrayals establish a framework of assumptions and expectations that shape how AI is perceived and evaluated (Cave & Dihal, 2019). One of the most powerful is dystopian narratives, often seen in movies and TV shows like The Terminator or Black Mirror. These stories frequently depict AI as dangerous, uncontrollable, or even hostile to humans. Cave and Dihal (2019, p.75),

analyzing more than 300 works depicting AI, have identified four major threats: the threat of inhumanity (a person risks losing their humanity or identity), obsolescence (the fear of being put out of work), the risk of alienation (in their desire for perfect interactions, humans become alienated from each other), and the fears of an uprising (AI-enabled power is turned—or turns—on people). By presenting AI as an existential threat, these stories heighten public anxiety and create strong mental links between intelligent machines and disastrous outcomes.

Besides fiction, sensationalist news coverage plays a key role in increasing public worry (Down, 2024). News headlines are crucial in shaping public sentiment since they are often the first—and sometimes only—part of an article that readers see. These short statements set the tone for the entire story and can greatly influence perception, especially when the full article isn't read. This impact is especially strong with artificial intelligence, where the public's understanding is still limited. Therefore, the sensational or emotionally charged headlines can heavily influence readers' views, often reinforcing fear, misunderstanding, or distrust of the technology.

According to Li and Zheng (2024), social media has emerged as a central avenue for accessing and engaging with information about artificial intelligence. Platforms now serve as key spaces where AI-related news, research findings, tutorials, and industry developments are widely shared, discussed, and debated (Guan & Chen, 2023; Qi et al., 2023). Moreover, the blurring of science fiction and reality further complicates public perception of AI. As Coeckelbergh (2022) noted, science fiction has played a significant role in fostering widespread fear by portraying AI systems as entities that could spiral beyond human control. These narratives, while fictional, often shape real-world anxieties and influence how people imagine the potential risks of AI technologies.

To better understand the psychological mechanisms underlying such anxiety, it is important to consider the role of specific cognitive distortions such as magical thinking. Illusory beliefs, including magical thinking, are defined as beliefs contradicting established scientific or cultural understandings of cause and effect. They have been identified as a significant cognitive distortion that may play a mediating role in anxiety-related processes (Einstein & Menzies, 2004, 2006). This includes superstitious thinking, thought–action fusion (TAF), and beliefs in paranormal or religious forces (Kingdon, Egan, & Rees, 2012). The Illusory Beliefs Inventory (IBI) was created as a multidimensional measure of magical thinking for both clinical and nonclinical populations, encompassing three core dimensions: Magical Beliefs, Spirituality, and Internal State–Thought Fusion (Kingdon et al., 2012). This conceptualization reflects a higher-order construct of magical thinking that may underlie various maladaptive cognitive patterns.

Research suggests that individuals with elevated worry—often a feature of neuroticism—might choose magical thinking as a strategy to manage distress and maintain a sense of control in uncertain or threatening situations (Barlow et al., 2012). Furthermore, TAF and magical ideation, which are strongly linked to obsessive–compulsive and generalized anxiety symptoms, may also be present in individuals high in neuroticism, indicating a broader relevance beyond OCD alone (Coles, Mennin, & Heimberg, 2001; West & Willner, 2011). Given this overlap, illusory beliefs may act as a cognitive mechanism linking neurotic traits to heightened anxiety, including anxiety related to emerging technologies such as AI.

Starting from those findings, the following hypotheses were formulated to explore the connections between Neuroticism, AI anxiety, and Illusory beliefs, with a particular focus on the potential mediating role of Illusory beliefs.

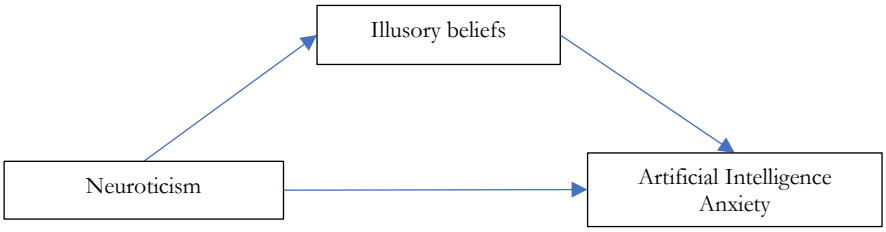
Hy1: Neuroticism positively correlates with AI Anxiety

Hy2: Neuroticism positively correlates with Illusory Beliefs

Hy3: Illusory Beliefs positively correlate with AI Anxiety

Hy4: Illusory Beliefs mediate the relation between Neuroticism and AI Anxiety

Figure 1: Conceptual framework



3. Methods

The sample consists of 197 participants (32 males and 165 females), aged between 18 to 55 years (M = 20.59, SD = 5.87). A purposive convenience sampling method was employed for data collection, utilizing a self-reported data collection technique. Participants were informed of the study's purpose and provided informed consent. Data confidentiality was assured, with use limited to research purposes. Participants completed a set of questionnaires comprising the following scales: Artificial Intelligence Anxiety Scale (AIA), Neuroticism Scale, and Illusory Beliefs Scale.

The Artificial Intelligence Anxiety Scale (Wang & Wang, 2019) comprises 21 items across four subscales: learning (e.g., Learning to understand all of the special functions associated with an AI technique/product makes me anxious), job replacement (e.g., I am afraid that widespread use of humanoid robots will take jobs away from people), sociotechnical blindness (e.g., I am afraid that an AI technique/product may get out of control and malfunction), and AI configuration (e.g., I don't know why, but humanoid AI techniques/products (e.g., humanoid robots) scare me). Responses were recorded on a seven-point Likert scale (1 = Strongly Disagree, 7 = Strongly Agree). In the present sample, the internal consistency was high (α = .938).

The Illusory Beliefs Inventory (Shihata, Egan, & Rees, 2014), is a 24 items scale divided on 3 subscales: spirituality (e.g., I believe guardian angels or other spiritual forces protect me)., internal state-thought fusion (e.g., I have sometimes changed my plans because I had a bad feeling), and magical beliefs (e.g., I sometimes perform special rituals for protection). The scale demonstrates good internal consistency (α = .848).

The Neuroticism Scale, developed by Eysenck and Eysenck (1968), consists of 12 items (e.g., "I am often troubled by feelings of guilt"). Participants responded on a 5-point Likert scale, ranging from 1 (Strongly Disagree) to 5 (Strongly Agree). In this study, the scale exhibited a high level of internal consistency, with a Cronbach's alpha of α = .917.

4. Results and discussions

The data analysis was performed using SPSS version 26.0, supplemented by the PROCESS macro (version 3.2.02) developed by Andrew F. Hayes, which facilitates the examination of mediation, moderation, and conditional process models (Preacher & Hayes, 2004). This analytical approach allowed for a comprehensive investigation of the relationships among the study variables, including the potential mediating role of Illusory beliefs.

Table 1 provides a detailed summary of the descriptive statistics, as well as the bivariate Pearson correlations among all key variables. The correlation matrix reveals several statistically significant associations, highlighting meaningful relationships within the dataset.

Regarding the first hypothesis (H1: Neuroticism positively correlates with AI Anxiety), the results showed a statistically significant positive correlation between neuroticism and AI anxiety ($r = 0.301$, $p < 0.01$), as displayed in Table 1. This supports the hypothesis and aligns with existing research on the emotional and cognitive traits linked to neuroticism.

Table 1: Descriptive statistics and inter-correlations of the study variable

	Mean	SD	1	1.a	1.b	1.c	1.d	2	2.a	2.b	2.c	3
1. AI Anxiety	83.64	24.11	-									
1.a Learning	23.19	10.82	.790**	-								
1.b Job replacement	30.29	8.42	.790**	.337**	-							
1.c Sociotechnical blindness	18.20	5.50	.810**	.433**	.713**	-						
1.d AI configuration	11.94	5.54	.802**	.542**	.548**	.600**	-					
2. Illusory beliefs	76.61	13.91	.331**	.237**	.270**	.228**	.339**	-				
2.a Magical beliefs	27.74	7.80	.287**	.251**	.189**	.164*	.310**	.864**	-			
2.b Spirituality	31.03	5.99	.223**	.136	.203**	.157*	.242**	.743**	.402**	-		
2.c Thought-action fusion	17.83	4.06	.251**	.130	.261**	.236**	.208**	.669**	.445**	.296**	-	
3. Neuroticism	41.04	10.70	.301**	.219**	.250**	.226**	.277**	.309**	.274**	.103	.379**	-

According to Stein et al. (2024), individuals high in neuroticism are more susceptible to external stressors and often struggle to regulate impulsive reactions. Consistent with these findings, MacDorman and Entezari (2015) found that individuals with higher levels of neuroticism reported significantly greater feelings of eeriness after interacting with an autonomous android compared to those lower in the trait. Similar

patterns have been observed in studies examining responses to self-driving cars, where heightened neuroticism was associated with increased discomfort and distrust (Sindermann et al., 2020).

Neuroticism is marked by a heightened sensitivity to negative emotions and a tendency to experience frequent, intense feelings like anxiety, irritability, impulsivity, and (subclinical) depression (John & Srivastava, 1999). These traits may make individuals more likely to react negatively to perceived threats or uncertainties, which is especially relevant in the context of emerging AI technologies.

Several mechanisms may explain the link between neuroticism and AI anxiety. One critical factor is the inherent complexity and opacity of many AI systems. These technologies often operate through highly technical algorithms that are not easily comprehensible to laypersons, contributing to what has been termed the "black-box" problem—the lack of transparency in how AI systems make decisions (Pellegrino, 2015), findings mirrored by the correlation between Neuroticism and Sociotechnical blindness dimension of AI anxiety ($r = 0.226$, $p < 0.01$). For individuals high in neuroticism, such ambiguity can amplify feelings of uncertainty and helplessness.

Moreover, individuals high in neuroticism who are confronted with the need to learn about Artificial Intelligence may find themselves overwhelmed by a range of negative emotional responses. The correlation between Neuroticism and the Learning dimension of AI anxiety ($r = 0.219$, $p < 0.01$) is therefore explained by the fact that the unfamiliarity and technical depth of AI can evoke a heightened fear of failure or inadequacy, particularly when people struggle to grasp new concepts or feel left behind by peers. Therefore, rather than approaching AI as an opportunity for growth, they may interpret it as a potential threat to their competence or stability. This cycle of worry and avoidance can further reinforce their anxiety, making it even more difficult to engage with the very learning that could help them adapt and feel more in control.

Additionally, existential concerns about job security and personal relevance in an AI-dominated future may further exacerbate anxiety. Those high in neuroticism are more likely to catastrophize and interpret technological change through a lens of risk and loss. In particular, fears surrounding automation-induced unemployment, the loss of control over one's career path, and the erosion of human agency can contribute to a sense of overwhelm or hopelessness, as seen in the correlation between Neuroticism and the Job replacement dimension of AI anxiety ($r = 0.250$, $p < 0.01$).

Furthermore, as mentioned by Widiger (2009), individuals high in neuroticism are characterized by heightened emotional sensitivity and an increased likelihood of perceiving neutral or ambiguous stimuli as threatening. Therefore, the correlation between Neuroticism and AI configuration dimension of AI anxiety ($r = 0.277$, $p < 0.01$) is explained by the fact that humanoid AI robots or technologies that mimic human form, movement, or interaction can evoke discomfort due to their uncanny resemblance to humans without being fully human, a phenomenon known as the "uncanny valley" (Mori et al., 2012). For neurotic individuals, this perceptual ambiguity may be processed as a source of threat or danger, resulting in fear, unease, or intimidation.

Thus, the correlation between neuroticism and AI anxiety is not only statistically significant but also theoretically grounded in the cognitive-emotional vulnerabilities associated with this personality trait.

The second hypothesis (Neuroticism positively correlates with Illusory Beliefs) was further supported by the results ($r = 0.309$, $p < 0.01$). The positive correlation between Neuroticism and Illusory beliefs, such as magical thinking ($r = 0.274$, $p < 0.01$), and thought–action fusion (TAF) ($r = 0.379$, $p < 0.01$), indicates a cognitive-emotional pattern where individuals high in neuroticism tend to use irrational or non-evidence-based beliefs to cope with anxiety, uncertainty, and a perceived lack of control. This suggests that illusory beliefs may act as maladaptive coping mechanisms for neurotic individuals when facing distressing or ambiguous situations (Barlow et al., 2014).

To further understand these findings, it is essential to consider the psychological function that illusory beliefs may serve in individuals high in neuroticism. These beliefs may offer a temporary sense of control or predictability in environments perceived as threatening or overwhelming. Given that neuroticism is associated with heightened sensitivity to uncertainty and a predisposition to perceive neutral events as negative (Barlow et al., 2014), magical thinking and TAF can act as cognitive shortcuts that simplify complex or ambiguous situations—albeit in ways that are not grounded in logic or evidence.

One form of illusory belief particularly relevant to neuroticism is thought–action fusion ($r = 0.379$, $p < 0.01$), the belief that merely having a negative thought increases the probability that the event will occur or is morally equivalent to carrying it out. This distortion is common in both obsessive–compulsive tendencies and generalized anxiety, and is linked to ruminative thinking (Einstein & Menzies, 2004; Lahey, 2009).

Magical thinking, a key part of illusory beliefs, defined as the belief in causal relationships that defy scientific understanding or cultural norms, also showed a positive correlation with Neuroticism ($r = 0.274$, $p < 0.01$). This result can be explained by the fact that neurotic individuals often exhibit cognitive biases such as confirmation bias, catastrophizing, and selective attention to threat (Widiger, 2009), biases that create fertile ground for magical beliefs to take root.

For instance, a person high in neuroticism might avoid using a new AI application because they believe that their anxious thoughts about a potential malfunction will somehow cause the system to fail. Alternatively, they may believe that by engaging in a certain ritual or behavior, they can protect themselves from negative technological outcomes. These patterns, while irrational, can temporarily alleviate distress and reinforce the use of such beliefs in future stressful contexts.

This interpretation aligns with research that positions magical thinking and TAF as mechanisms through which individuals cope with anxiety and reduce psychological discomfort (Einstein & Menzies, 2006). However, such coping strategies are ultimately maladaptive because they distort perception, prevent accurate risk assessment, and may contribute to avoidance behaviors or excessive worry, particularly concerning complex technologies (Marciano et al., 2020).

Moreover, the strength of the correlation between neuroticism and TAF ($r = .379$) suggests that this specific cognitive distortion plays a particularly salient role in the neurotic cognitive-emotional style. It may reflect a deeper fusion between internal emotional experiences and external outcomes, which fuels hyper-responsibility, guilt, and irrational protective behaviors (Widiger & Oltmanns, 2017). These tendencies could have broader

implications for how neurotic individuals approach novel or rapidly evolving technologies, potentially fostering technophobia or resistance to AI adoption.

Similarly, the third hypothesis (Hy3: Illusory Beliefs positively correlate with Artificial Intelligence Anxiety) was supported by the results ($r = 0.331$, $p < 0.01$). The positive correlation between Illusory beliefs and AI anxiety indicates that individuals more prone to magical thinking, thought–action fusion (TAF), and spiritual causality ($r = 0.223$, $p < 0.01$), tend to feel greater fear, unease, or discomfort toward AI technologies. This relationship reflects the broader psychological tendency for people to cope with uncertainty and perceived threats through irrational or non-evidence-based cognitive frameworks. While these frameworks might offer short-term emotional regulation, they may also increase long-term anxiety, especially in complex and unfamiliar situations involving AI.

These results indicate that magical thinking, defined as the belief in causality that contradicts scientific logic, significantly amplifies fear toward AI. People with higher levels of magical ideation may see AI technologies as inherently threatening, possibly viewing them as uncontrollable, unnatural, or symbolically transgressive, thus challenging their deeply held beliefs about human agency, morality, or divine order.

Similarly, those exhibiting high levels of thought–action fusion, the specific cognitive distortion that equates having a thought with acting, or that thoughts can cause events to happen, may interpret interactions with AI technologies as dangerous or morally charged, even when those fears are not grounded in objective reality ($r = 0.251$, $p < 0.01$).

Lastly, the link to spiritual causality, which is the belief that unseen or divine forces guide events, further highlights the psychological tension some people may experience when encountering AI systems that are autonomous, decision-making, and human-like, yet without a soul, morality, or divine intention ($r = 0.287$, $p < 0.01$).

To test our last hypothesis (Hy4: Illusory Beliefs mediate the relationship between Neuroticism and AI Anxiety), the PROCESS macro for SPSS version 3.5 developed by Professor Hayes was used (Preacher & Hayes, 2004). The model includes Neuroticism as a predictor, Illusory beliefs as a mediator, and AI anxiety as an outcome variable (Figure 1). The statistical results concerning this mediation process emphasize the mediation effect on Illusory beliefs: Neuroticism -> Illusory beliefs -> AI anxiety (Table 2).

In Step 1 of the mediation model, the regression of Neuroticism on AI anxiety, without considering the mediator, is significant, $F(1,195) = 19.40$, $p < .000$, $R2 = .09$, $b = .67$, $t(195) = 4.40$, $p < .000$. Step 2 shows that the regression of Neuroticism on the mediator, Illusory beliefs, is also significant, $F(1,195) = 20.61$, $p < .000$, $R2 = .09$, $b = .40$, $t(195) = 4.54$, $p < .000$. Step 3 of the mediation process indicates that the mediator, Illusory beliefs, when controlling for Neuroticism, is significant, $F(2,194) = 17.52$, $R2 = .15$, $p < .000$, $b = .45$, $t(194) = 3.78$, $p < .001$. Step 4 reveals that, controlling for the mediator, Illusory beliefs, the Neuroticism score is a less significant predictor of AI anxiety, $b = .49$, $t(194) = 3.15$, $p < .005$, than in the previous case.

Table 2: Regression results for the mediation process

Model	Coeff.	SE	t	p	CI (lower)	CI (upper)
Without mediator						

Neuroticism -> AI Anxiety (c)	.6777	.1539	4.4051	.0000	.3743	.9811
With mediator						
Neuroticism -> Illusory Beliefs (a)	.4020	.0885	4.5402	.0000	.2274	.5767
Illusory Beliefs -> AI Anxiety (b)	.4556	.1204	3.7850	.0002	.2182	.6931
Neuroticism -> AI Anxiety (c')	.4945	.1565	3.1597	.0018	.1859	.8032

According to the recommendation of Baron and Kenny's (1986), mediation was tested using the Aroian version of the Sobel test, which demonstrated that Illusory beliefs significantly mediate the relationship between Neuroticism and AI anxiety ($z = 2.98$, $p < .005$). Similar results were observed with the Goodman version of the Sobel test ($z = 3.03$, $p < .005$).

5. Conclusion

The current study examined the relationship between Neuroticism and artificial intelligence (AI) anxiety, with a particular focus on the mediating role of illusory beliefs. Consistent with Hypothesis 1, Neuroticism was found to be positively correlated with AI anxiety, supporting the idea that individuals high in neurotic traits are more likely to experience distress when faced with the uncertainty, complexity, and perceived threat posed by AI. This aligns with previous research highlighting neuroticism as a strong predictor of emotional dysregulation, heightened reactivity to stress, and avoidance behavior (Barlow et al., 2014; Widiger, 2009). The current findings confirm that neuroticism remains a significant predictor in technologically mediated contexts, extending its relevance beyond traditional mental health outcomes.

Furthermore, the study also confirmed Hypothesis 2, finding a significant positive correlation between Neuroticism and Illusory beliefs. More specifically, individuals high in neuroticism demonstrated elevated levels of magical beliefs ($r = 0.274$, $p < .01$) and thought–action fusion (TAF) ($r = 0.379$, $p < .01$), suggesting that emotionally vulnerable individuals may use irrational or non-evidence-based beliefs as maladaptive coping mechanisms. This supports previous work indicating that neurotic individuals often rely on cognitive distortions such as catastrophizing and selective attention to threat (Einstein & Menzies, 2006; Lahey, 2009) to regulate their emotional states in unpredictable or uncontrollable situations.

Moreover, in line with Hypothesis 3, Illusory beliefs were also significantly correlated with AI anxiety ($r = 0.331$, $p < .01$), including its subdimensions such as AI configuration ($r = 0.339$, $p < .01$), job replacement ($r = 0.270$, $p < .01$) and learning ($r = 0.237$, $p < .01$). These findings point to the role of magical thinking, TAF, and spiritual causality as cognitive distortions that may increase perceived risk or threat from AI technologies. Illusory beliefs may amplify fear responses by offering irrational interpretations of AI behavior, such as attributing spiritual or malevolent intent to autonomous systems, which can intensify anxiety and avoidance.

Lastly, the study provided empirical support for Hypothesis 4, demonstrating that Illusory beliefs significantly mediate the relationship between Neuroticism and AI anxiety. This result is supported by previous findings that stated that cognitive distortions, such as magical thinking or thought–action fusion, function as intermediary psychological mechanisms through which Neuroticism is translated into context-specific technological anxiety, such as fear (Kieslich, Lünich, & Marcinkowski, 2021). In other words, individuals high in neuroticism are not inherently afraid of technology per se; rather, their heightened sensitivity to threat, uncertainty, low coping potential, self-efficacy, and control makes them more prone to adopt irrational or non-evidence-based beliefs when faced with complex, novel, or poorly understood systems like artificial intelligence (Dehne, 2017; Witte, 1992). Instead of processing AI neutrally or curiously, they are more likely to interpret it through the lens of danger, unpredictability, or moral ambiguity, thus leading to elevated anxiety.

The findings of this study provide not only valuable theoretical insights into the psychological mechanisms underlying AI anxiety but also point toward actionable strategies for intervention. Recognizing that individuals high in neuroticism are more susceptible to AI-related anxiety—particularly when influenced by illusory beliefs—highlights the need for targeted educational and psychological approaches. One promising direction involves the development of cognitive-behavioral group psychoeducation programs aimed at challenging and restructuring irrational beliefs related to AI (Şahin & Türk, 2021). Such interventions could incorporate interactive modules that demystify AI technologies, clarify their actual capabilities and limitations, and encourage participants to engage in critical and evidence-based thinking rather than relying on magical or emotionally biased interpretations. This type of programming may help reduce anxiety and foster more adaptive and informed attitudes toward AI. In organizational contexts, employee training programs that address both technical skills and emotional reactions to automation and AI integration could help reduce resistance and increase acceptance. These initiatives can support not only technological adaptation but also psychological well-being in the face of rapid digital transformation.

Despite its contributions, the current study has several limitations. Most notably, it employed a cross-sectional design, which prevents causal conclusions from being drawn. While the findings support a mediational framework, longitudinal or experimental research would be needed to establish whether illusory beliefs causally mediate the effect of neuroticism on AI anxiety over time and how personality interacts with technological change.

Furthermore, the study relied on a convenience sample, predominantly composed of young adults and skewed heavily toward female participants. This limits the generalizability of the results to more diverse populations. Future studies should aim for broader demographic representation, a more balanced sample, including different age groups, cultural backgrounds, and levels of technological exposure, to assess the robustness of the observed relationships.

Moreover, future research should not only continue to examine the psychological mechanisms underlying AI anxiety but also begin testing practical interventions. For instance, experimental studies could assess whether reducing illusory beliefs—such as magical thinking or thought-action fusion—leads to a measurable decrease in AI-related

anxiety. Alternatively, enhancing coping strategies (e.g., cognitive reappraisal, self-efficacy training) may buffer the emotional reactivity associated with neurotic traits when individuals engage with AI technologies.

Moreover, while the study examined Illusory beliefs as a mediator, other relevant psychological constructs, such as Core self-evaluation (Judge & Bono, 2001), were not included in the model. These factors may interact with or moderate the effects of neuroticism and illusory beliefs, and should be explored in future research. Understanding these interactions could help identify protective factors that buffer individuals from the negative psychological impact of technological change.

Finally, the use of self-report measures may have introduced potential response biases, including social desirability effects and limitations in participants' self-awareness or accuracy in introspection. Incorporating behavioral measures, qualitative data, or physiological indicators of anxiety could enhance the depth and accuracy of future investigations. Such multimethod approaches could help bridge the gap between subjective perception and observable reaction, improving ecological validity and practical application.

References

Alsheibani, S. A., Cheung, Y. P., & Messom, C. H. (2018). Artificial Intelligence Adoption: AI-readiness at Firm-Level, In Motonari Tanabu, Dai Senoo (Eds.), PACIS 2018 Proceedings, 37. https://aisel.aisnet.org/pacis2018/37

Aquino, K., & Douglas, S. (2003). Identity threat and antisocial behavior in organizations: The moderating effects of individual differences, aggressive modeling, and hierarchical status. *Organizational Behavior and Human Decision Processes, 90*(1), 195–208. https://doi.org/10.1016/S0749-5978(02)00517-4

Barlow, D. H., Sauer-Zavala, S., Carl, J. R., Bullis, J. R., & Ellard, K. K. (2014). The Nature, Diagnosis, and Treatment of Neuroticism: Back to the Future. *Clinical Psychological Science, 2*(3), 344–365. https://psycnet.apa.org/doi/10.1177/2167702613505532

Baron, R. M., & Kenny, D. A. (1986). The moderator-mediator variable distinction in social psychological research: conceptual, strategic, and statistical considerations. *Journal of Personality and Social Psychology, 51*(6), 1173-1182.

Bernazzani, S. (2025, June 11). 10 jobs artificial intelligence will replace (and 10 that are safe). Retrieved from: https://blog.hubspot.com/marketing/jobs-artificial-intelligence-will-replace

Bishop, S., & Forster, S. (2013). Trait anxiety, neuroticism, and the brain basis of vulnerability to affective disorder. In J. Armony & P. Vuilleumier (Eds.), *The Cambridge handbook of human affective neuroscience* (pp. 553–574). Cambridge University Press.

Bond, F. W., & Bunce, D. (2003). The role of acceptance and job control in mental health, job satisfaction, and work performance. *Journal of Applied Psychology, 88*(6), 1057–1067. https://doi.org/10.1037/0021-9010.88.6.1057

Bourne, C. D. (2019). AI cheerleaders: Public relations, neoliberalism and artificial intelligence. *Public Relations Inquiry, 8*, 109 – 125. https://doi.org/10.1177/2046147X19835250

Cao, J., Yao, J., Sun, S., Song, Z., Zhang, F., & Zhang, F. (2025). Not all forms of artificial intelligence are perceived equal: AI functions and work outcomes. *Journal of Open Innovation: Technology, Market, and Complexity, 11*(2), Article 100521. https://doi.org/10.1016/j.joitmc.2025.100521

Castelo, N. (2019). Blurring the line between human and machine: Marketing artificial intelligence (Doctoral dissertation). Columbia University Academic Commons. https://doi.org/10.7916/d8-k7vk-0s40

Cave, S., & Dihal, K. (2019). Hopes and fears for intelligent machines in fiction and reality. *Nature Machine Intelligence, 1,* 74–78. https://doi.org/10.1038/s42256-019-0020-9

Chen, Y. N. K., & Wen, C. H. R. (2021). Impacts of attitudes toward government and corporations on public trust in artificial intelligence. *Communication Studies, 72*(1), 115–131. https://doi.org/10.1080/10510974.2020.1807380

Coeckelbergh, M. (2022). *Robot ethics*. MIT Press.
Coles, M. E., Mennin, D. S., & Heimberg, R. G. (2001). Distinguishing obsessive features and worries: The role of thought–action fusion. *Behaviour Research and Therapy, 39*, 947–959. https://doi.org/10.1016/S0005-7967(00)00072-3
Costa, P. T, & McRae, R. R. (1992). Four ways five factor are basic, *Journal of Personality and Social Psychology, 13*(6), 653-665. https://doi.org/10.1016/0191-8869(92)90236-I
Costa, P. T., Jr., & McCrae, R. R. (1992). *Revised NEO Personality Inventory (NEO PI-R) and NEO Five-Factor Inventory (NEO-FFI) professional manual*. Psychological Assessment Resources.
Dehne, M. (2017). *Soziologie der Angst*. Springer Fachmedien Wiesbaden.
Down, M. (2024, September 14). AI phobia: How news headlines shape public fear of artificial intelligence. Retrieved from https://hackernoon.com/ai-phobia-how-news-headlines-shape-public-fear-of-artificial-intelligence
Einstein, D. A., & Menzies, R. G. (2004). Role of magical thinking in obsessive–compulsive symptoms in an undergraduate sample. *Depression and Anxiety, 19*, 174–179. https://doi.org/10.1002/da.20005
Einstein, D. A., & Menzies, R. G. (2006). Magical thinking in obsessive–compulsive disorder, panic disorder and the general community. *Behavioural and Cognitive Psychotherapy, 34*, 351–357. https://doi.org/10.1017/s1352465806002864
Eysenck, S. B., & Eysenck, H. J. (1968). The measurement of psychoticism: A study of factor stability and reliability. *British Journal of Social & Clinical Psychology, 7*(4), 286–294. https://doi.org/10.1111/j.2044-8260.1968.tb00571.x
Goldberg, L. R. (1993). The structure of phenotypic personality traits. *American Psychologist, 48*(1), 26–34. https://psycnet.apa.org/doi/10.1037/0003-066X.48.1.26
Guan, T., & Chen, X. (2023). The emerging scientific public sphere in China's digital economy: Weibo discussions on facial recognition technology. *Public Understanding of Science, 32*(2), 208–223. https://doi.org/10.1177/09636625221113957
John, O. P., & Srivastava, S. (1999). The Big Five Trait taxonomy: History, measurement, and theoretical perspectives. In L. A. Pervin & O. P. John (Eds.), *Handbook of personality: Theory and research* (2nd ed., pp. 102–138). Guilford Press.
Johnson, D. G., & Verdicchio, M. (2017). AI anxiety. *Journal of the Association for Information Science and Technology, 68*(9), 2267–2270. https://doi.org/10.1002/asi.23867
Jones, M. L., Kaufman, E., & Edenberg, E. (2018). AI and the ethics of automating consent. *IEEE Security & Privacy, 16*(3), 64–72. https://doi.org/10.1109/MSP.2018.2701155
Judge, T. A., & Bono, J. E. (2001). Relationship of core self-evaluations traits—self-esteem, generalized self-efficacy, locus of control, and emotional stability—with job satisfaction and job performance: A meta-analysis. *Journal of Applied Psychology, 86*(1), 80–92. https://doi.org/10.1037/0021-9010.86.1.80
Kingdon, B. L., Egan, S. J., & Rees, C. S. (2012). The Illusory Beliefs Inventory: A new measure of magical thinking and its relationship with obsessive compulsive disorder. *Behavioural and Cognitive Psychotherapy, 40*, 39–53. https://doi.org/10.1017/S1352465811000245
Kieslich, K., Lünich, M., & Marcinkowski, F. (2021). The Threats of Artificial Intelligence Scale (TAI). Development, Measurement and Test Over Three Application Domains. *International Journal of Social Robotics, 13*, 1563–1577. https://doi.org/10.1007/s12369-020-00734-w
Lahey, B. B. (2009). Public health significance of neuroticism. *American Psychologist, 64*(4), 241–256. https://doi.org/10.1037/a0015309
Li, W., & Zheng, X. (2024). Social media use and attitudes toward AI: The mediating roles of perceived AI fairness and threat. Human-Centric Computing and Information Sciences, 2024, Article 3448083. https://doi.org/10.1155/2024/3448083
Liang, H., & Xue, Y. (2009). Avoidance of information technology threats: A theoretical perspective. *MIS Quarterly, 33*(1), 71–90. https://doi.org/10.2307/20650279
Liang, H., Xue, Y., Pinsonneault, A., & Wu, Y. (2019). What users do besides problem-focused coping when facing IT security threats: An emotion-focused coping perspective. *MIS Quarterly, 43*(2), 373–394. https://doi.org/10.25300/MISQ/2019/14360
Makridakis, S. (2017). The forthcoming Artificial Intelligence (AI) revolution: Its impact on society and firms. *Futures, 90*, 46–60. https://doi.org/10.1016/j.futures.2017.03.006

Manyika, J., Lund, S., Chui, M., Bughin, J., Woetzel, J., Batra, P., Ko, R., & Sanghvi, S. (2017). Jobs lost, jobs gained: Workforce transitions in a time of automation. McKinsey Global Institute.

Marciano, L., Camerini, A.-L., & Schulz, P. J. (2020). Neuroticism in the digital age: A meta-analysis. Computers in Human Behavior Reports, 2, Article 100026. https://doi.org/10.1016/j.chbr.2020.100026

Mori, M., MacDorman, K. F., & Kageki, N. (2012). The uncanny valley [From the field]. *IEEE Robotics & Automation Magazine, 19*(2), 98–100. https://doi.org/10.1109/MRA.2012.2192811

Pellegrino, G. (2015). Obsolescence, presentification, revolution: Sociotechnical discourse as site for in fieri futures. *Current Sociology, 63*, 216 - 227. https://doi.org/10.1177/0011392114556584

Preacher, K. J., & Hayes, A. F. (2004). SPSS and SAS procedures for estimating indirect effects in simple mediation models. *Behavior Research Methods, Instruments, and Computers, 36*(4), 717-731. https://doi.org/10.3758/bf03206553.

Qi, W., Pan, J., Lyu, H., & Luo, J. (2023). Excitements and concerns in the post-ChatGPT era: Deciphering public perception of AI through social media analysis. arXiv. http://arxiv.org/abs/2307.05809

Rosen, L. D., & Weil, M. M. (1990). Computers, classroom instruction and the computerphobic university student. *Collegiate Microcomputer, 8*(4), 257–283.

Shihata, S., Egan, S. J., & Rees, C. S. (2014). Evaluation of magical thinking: Validation of the Illusory Beliefs Inventory. *Cognitive Behaviour Therapy, 43*(3), 251–261. https://doi.org/10.1080/16506073.2014.926391

Sindermann, C., Sha, P., Zhou, M., Wernicke, J., Schmitt, H. S., Li, M., Sariyska, R., Stavrou, M., Becker, B., & Montag, C. (2020). Assessing the attitude towards artificial intelligence: Introduction of a short measure in German, Chinese, and English language. *Künstliche Intelligenz, 35*(1), 109–118. https://doi.org/10.1007/s13218-020-00689-0

Stein, J. P., Messingschlager, T., Gnambs, T., Hutmacher, F., & Appel, M. (2024). Attitudes towards AI: Measurement and associations with personality. *Scientific Reports, 14*(1), 2909. https://doi.org/10.1038/s41598-024-53335-2

Şahin, H., & Türk, F. (2021). The impact of cognitive-behavioral group psycho-education program on psychological resilience, irrational beliefs, and well-being. *Journal of Rational-Emotive & Cognitive-Behavior Therapy, 39*(4), 672–694. https://doi.org/10.1007/s10942-021-00392-5

Urbain, T. (2025, June 30). Disturbing signs of AI threatening people spark concern. ScienceAlert (via AFP).

Wang, Y. S. (2007). Development and validation of a mobile computer anxiety scale. *British Journal of Educational Technology, 38*(6), 990–1009. https://doi.org/10.1111/j.1467-8535.2006.00687.x

Wang, Y. Y., & Wang, Y. S. (2019). Development and validation of an artificial intelligence anxiety scale: an initial application in predicting motivated learning behavior. *Interactive Learning Environments, 30*(4), 619–634. https://doi.org/10.1080/10494820.2019.1674887

Watson, D. (2000). *Mood and temperament*. Guilford Pres.

West, B., & Willner, P. (2011). Magical thinking in obsessive–compulsive disorder and generalized anxiety disorder. *Behavioural and Cognitive Psychotherapy, 39*, 399–411. https://doi.org/10.1017/S1352465810000883

Widiger, T. A. (2009). Neuroticism. In M. R. Leary & R. H. Hoyle (Eds.), *Handbook of individual differences in social behavior* (p. 129–146). The Guilford Press.

Widiger, T. A., & Oltmanns, J. R. (2017). Neuroticism is a fundamental domain of personality with enormous public health implications. *World Psychiatry, 16*(2), 144–145. https://doi.org/10.1002/wps.20411

Witte, K. (1992). Putting the fear back into fear appeals: The extended parallel process model. *Communication Monographs, 59*(4), 329–349. https://doi.org/10.1080/03637759209376276