

Research on the Application of Actor Reverse Performance and AI Technology

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Abstract: Reverse acting is a performance technique that breaks conventions. Actors use this method to understand their characters from different angles, thus entering the role with a fresh perspective. This approach helps actors more accurately grasp the psychological activities of their characters and understand their motivations. It can even uncover secrets deep within the characters psyche. This unconventional performance style can achieve twice the result with half the effort. When the external behavior of a character contradicts its inner motivation, it creates a strong sense of conflict. By using AI to analyze the emotional reverse expression in script characters, techniques such as sentiment analysis, behavior simulation, and speech recognition can deeply explore the psychological activities and behavioral patterns of characters. AI not only helps analyze the emotional contrast of characters but also assists actors in training their emotional expressions, and even provides new ideas for scriptwriting. Through multi-dimensional analysis and presentation by AI, the emotional layers of dramatic works can become clearer, and the complexity of characters can be better portrayed. In this intelligent age, everyone is both small and great. Just as Freud deconstructed and reconstructed his psychoanalytic theory by analyzing the personalities of classic figures like Antigone and Oedipus, the new era of drama and film can also provide a reference for advanced human self-awareness in this intelligent age through the new modal analysis of the personalities of various classic characters from ancient and modern times, both at home and abroad.

Keywords: Reverse Performance; Artificial Intelligence; Special Emotional Expressions.

1. Express Opposite Emotions to Express Real Feelings

Reverse acting is a performance technique that breaks the rules. Actors use this technique to understand their characters from different angles. Thus, they enter their characters from a new perspective. [1]

This method helps actors more accurately understand the psychological activities of their characters and grasp the motivations. It can even uncover deep-seated secrets within the character. This kind of performance, which breaks conventional logical thinking, can achieve twice the result with half the effort. When a characters external behavior contradicts their inner motivation, it creates a strong sense of conflict. The audiences reaction will be more intense and direct.

Such reactions are common in life. For example, some people use a smile to cover up anger, some people use silence to show collapse. Some reverse emotions are purposeful, and some are emotions that they cant control.

2. The Role of Reverse Performance

2.1. Highlight the Contradiction of the Character

A character feels extremely sad but expresses it through a smile, humor, or a relaxed demeanor. This reverse emotional expression highlights the characters inner struggle and unspoken pain, making the audience feel the intense contrast within the character, thus enhancing the sense of conflict. Through the opposition between emotion and behavior, reverse acting reveals the characters inner conflicts and complex emotions, such as unacceptable grief, unexpressed anger, or suppressed fear.

In "Hamlet," Hamlets heart is filled with a desire for

revenge, yet his actions reveal extreme hesitation and indecision. Despite his strong motive for revenge, every action he takes is delayed and deliberated upon. On the surface, he appears calm and rational, but deep down, he feels profound confusion and self-reproach. This conflict between emotion and action highlights Hamlets inner turmoil.

2.2. Enhance Dramatic Conflict

Through the inner and external conflict of the character, the tension and dramatic tension of the work can be enhanced.

In "Macbeth," Macbeths desire for the throne plunges him into an inner moral dilemma. In front of others, he displays his thirst for power and resolve, but deep down, he is filled with fear, remorse, and anxiety about the consequences of his evil deeds. Macbeths actions, from initial hesitation to final murder, present a stark contrast between his outward coldness and decisiveness and his inner pain and unease.

Lets take a fragment from the classic play Thunderstorm as an example:

Zhou Puyuan No. Youd better drink it now.

Zhou Caiyi, take it away.

Zhou Puyuan drank it, dont be capricious in front of such a big child.

Zhou Caiyi I dont want to drink.

Zhou Puyuan: Chonger, bring the medicine to your mother.

Zhou Chongpa!

Zhou Puyuan goes!

Chong had no choice but to bring the medicine to Cai Yi.

Zhou Puyuan said, please have mother drink.

Zhou Chong (holding the medicine bowl, his hand trembling, turning back, loudly) Dad, please dont do this.

Zhou Puyuan (in a loud voice) I want you to say it.

Zhou Ping (looking down, approaching Chong,

whispering) Listen to your father. You know his temper.

Zhou Chong (unable to hold back his tears and looking at his mother) Drink, please, for me, or fathers anger will not go away.

Zhou Caiyi (pleadingly) Oh, cant I stay up late?

Zhou Puyuan (coldly) Cai Yi, as a mother, you should think of your children everywhere. Even if you do not take care of your own health, you should be a model for obedience to your children. [2]

External behavior: Zhou Puyuan appears extremely strong and authoritative on the surface, ordering Zhou Chong to hand the medicine to Cai Yi and demanding that she drink it. His words are harsh and his tone is cold, trying to oppress and control every member of the family through power, especially his wife Cai Yi.

Inner Contradiction: Although Zhou Puyuan appears cold and unfeeling on the surface, his actions actually reveal his control over his family and his wife, as well as his concerns about the household. He forces Cai Yi to take medicine, ostensibly for her health, but in reality, it is a way of lacking trust and emotional connection with his wife. Behind this behavior lies a deep-seated need for power and a fear of being dominated by his family members.

2.3. Increase the Emotional Resonance of the Audience

Reverse performance can evoke empathy from the audience, as it showcases the complexity and contradictions in emotional expression of characters. This contrast between external and internal states resonates with the audience, especially when it comes to the characters pain or concealed emotions. Audiences are more likely to connect emotionally with these characters, particularly during their struggles and hardships.

For example, a character who appears cold on the surface may be filled with helplessness and vulnerability inside. Reverse acting makes the characters personality more complex, allowing the audience to gain deeper insights into their motivations and behaviors, thus making the character more three-dimensional and full-bodied. Reverse acting can reveal the inner transformations a character undergoes in the story. By gradually revealing the true emotions or psychological changes within the character, the audience can witness their growth or liberation process.

3. Reverse Performance under AI Technology

Dramatic art has undergone multiple stages in its historical development, integrating with digital technology, and the forms of audio-visual experiences have been continuously innovated. From the early application of multimedia technology on stage, such as sound, light, electricity, and real-time images, to the widespread dissemination of live-streamed dramas and screen dramas, digital attempts have not only expanded the boundaries of dramatic creation but also gradually promoted the transformation of dramatic forms from physical to virtual. [3]

AI recognition technology can extract character traits and patterns from large amounts of dramatic text, forming a comprehensive and in-depth character profile. AI can leverage models such as Convolutional Neural Networks (CNN) to process text at the character level or word level,

capturing subtle differences and changes in character traits at various levels and degrees of abstraction. AI can also utilize technologies like Natural Language Processing (Natural Language Processing, abbreviated as NLP) to understand the semantics and emotions in text, thereby revealing the motivations and psychological states of characters. (Natural Language Processing (Natural Language Processing, NLP) is an interdisciplinary field that encompasses linguistics, computer science, and artificial intelligence. It primarily focuses on how to use rule-based or probabilistic machine learning methods (such as statistical and more recent neural networks) to process natural language datasets, such as text corpora or speech corpora. The goal is to enable computers to "understand" the content of documents, including their linguistic context, intent, and emotion. Technologies in natural language processing can achieve automatic translation of text or speech data, speech recognition, natural language understanding, and natural language generation.).

Using AI for analysis and presentation of the emotional reverse expression in this segment of "Thunderstorm" can be achieved through techniques such as sentiment analysis, behavior simulation, and speech recognition, deeply exploring the psychological activities and behavioral patterns of characters. AI not only helps analyze the emotional contrast of characters but also assists actors in training their emotional performance, and even provides new ideas for scriptwriting. Through multi-dimensional analysis and presentation by AI, the emotional layers of dramatic works can become clearer, and the complexity of characters can be better portrayed.

3.1. Real-time Monitoring of Actors Microexpressions

In this paragraph, Zhou Puyuan's inner conflict and pain are particularly evident. The AI can monitor and reverse the subtle changes in the actors micro-expressions. For example, an actor might originally convey anxiety or anger through painful micro-expressions, but the AI system can provide real-time feedback to transform these expressions into restrained smiles or calm faces, creating an emotional conflict and dislocation. This reversal highlights the psychological struggle of the character under extreme suppression, enhancing the dramatic tension.

When the actor picks up the pill, the AI system can monitor and respond to the "determination" or "helplessness" emotions in micro-expressions. For example, when the actor decides to take the medication, the AI can guide the actor to display a psychological shift from resolve to hesitation through micro-expression reversals-- This subtle change significantly enhances the depth of the characters emotions. The system helps actors convey their inner conflict and pain through minor facial movements (such as changes in eye contact, lip tension, etc.) before and after taking the medication.

Through AI technology, changes in lighting can be synchronized with the actors micro-expressions. In the climax of the drug-drinking scene, AI not only provides feedback on facial micro-expressions but also controls the changes in lighting to match the actors micro-expressions. For example, when the actor decides to drink the drug, the lighting might suddenly dim, complementing the AI-generated calm expression, allowing the audience to feel the deep turmoil within the character. This subtle interplay of light and shadow, along with the expression reversal, adds depth to the stage.

3.2. Capture Actor Action

Capturing actor action is the process of accurately capturing and analyzing actor behavior through technical means in stage performance, especially when combined with AI or other monitoring systems, which can deeply explore the details of actor action.

3.2.1. Motion Capture (Motion Capture, MoCap)

- Application scenario: Capture the actors movements and convert them into digital data by wearing special sensors or markers.

- Function: Real-time capture of actors body movements, posture changes, walking, jumping, running and other details can be used to generate digital character actions (such as dynamic effects on virtual characters or on stage).

- Presentation: In a play, this technique can help directors analyze an actors stage movement and body language, or even reverse or enhance action expression. By feeding the captured data back to the AI system, actors movements can be adjusted in real time.

3.2.2. Facial Expression Capture

- Application scenario: Tracking the facial muscle movements of actors using facial capture technology (such as infrared cameras or high-definition cameras).

- Function: Capture the actors micro expressions (such as eye, eyebrow movements, lip changes, etc.) and subtle changes in expression.

- Performance mode: For example, in the drug drinking scene of "Thunderstorm", AI can detect emotional fluctuations according to the facial changes of the actor, adjust the emotional expression and behavioral response of the actor in real time, and help the actor better express the complex inner world.

3.2.3. Speech Recognition and Emotion Analysis

- Application scenario: Analyze the voice, pitch and rhythm of actors through high-precision speech recognition technology.

- Function: Through speech analysis, capture the emotional fluctuations in the actors voice (such as anger, joy, pain, etc.), and combine with AI emotion recognition to adjust the actors line emotion and tone.

- Performance mode: In the play, AI can guide the actors to adjust the intensity and emotional color of the lines through pauses and tone changes in the dialogue, so that the emotional expression of the characters is more real and refined.

3.2.4. Gait Analysis (Gait Analysis)

- Application scenario: Monitor the way actors walk, run or stay by using gait recognition technology.

- Function: Capturing the speed, stride, posture, and even subtle deviations of an actors walking. This technique can help actors adjust their walking posture or movements to fit the characters personality in a stage performance.

- Performance mode: For example, when certain characters need to show a certain emotion (such as anxiety, fatigue, coldness, etc.), the AI system can adjust the actors movements according to gait analysis, and enhance the inner expression of the character.

These technologies can provide more creative and expressive means in modern plays, not only allowing actors to enhance their acting through digital feedback, but also helping directors and teams better understand and adjust performances to ultimately improve the overall stage effect.

4. Epilogue

In this study, we explore the relationship between actors reverse performance and the auxiliary application of AI technology, revealing how modern technology can bring new forms of expression and creative possibilities to traditional theatrical performances. Through the analysis and simulation provided by AI technology, actors can gain a deeper understanding of the inner world of characters, uncover potential conflicts and emotional flows in their performances. Reverse performance, as a way to break through traditional performance frameworks, also allows actors to more freely explore the multidimensionality of roles. Although the application of AI in performing arts is still in its early stages, its potential undoubtedly offers new perspectives and tools for future dramatic creation and performance. In the future, with continuous technological advancements, the interaction between AI and actor performance will become increasingly close, and their integration may bring about revolutionary changes in the interpretation of dramatic art.

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