

Acting Lessons for Artificial Intelligence

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Theater actors have been staging artificial intelligence for centuries. If one shares the view that intelligence manifests in behavior, one must wonder what lessons the AI community can draw from a practice that is historically concerned with the infusion of artificial behavior into such vessels as body and text. Like researchers in AI, actors construct minds by systematic investigation of intentions, actions, and motor processes with the proclaimed goal of artificially recreating human-like behavior. Therefore, acting methodology may hold valuable directives for designers of artificially intelligent systems. Indeed, a review of acting method literature reveals a number of insights that may be of interest to the AI community, three of which are outlined below:

Psycho-physical Unity

Acting teacher Augusto Boal states firmly: “one’s physical and psychic apparatuses are completely inseparable. [...] A bodily movement ‘is’ a thought and a thought expresses itself in corporeal form.”¹ The utter unity of mental and motor expression is stressed throughout acting method, regardless of school, and dating back at least as far as the 19th century.² The physical aspects of psychological motivation become even more central in modern Stanislavskian method,³ which trains actors to both uncover physical manifestations of internal processes, and conversely evoke mental processes *through* physical action. This approach also finds mounting support in recent findings in cognitive psychology, which link cognition to a multi-modal simulation of physical experience.⁴

In recent years the AI community has finally come to recognize the value of embodied cognition. To many of us it seems increasingly futile to develop intelligence without regard to the physical aspects of sensation and action. Yet in the majority of our systems, predominantly semantic “decision” modules are still connected to “sensory” and “motor” subsystems by lines as thin as box-chart arrows or network packet streams. Taking a hint from acting method, it may be time to tear down the barrier between Thinking and Doing, and explore an alternative in which intelligent behavior does not merely communicate with physical behavior, but is part and parcel of the same process – an indivisible whole.

Mutual Responsiveness

Just as thought does not happen in a physical void, useful agents do not act in a social void, and the most apt intelligent machines should interact well with humans and other artificial agents. Much like the shift in AI from single-agent approaches to multi-agent and human-interaction systems, theater practice is increasingly concerned with the relationship between actors as much as it is with each actor’s individual performance. Acting guru Sanford Meisner is most famous for placing much of the content of a scene in the interaction *between* the actors, endorsing a seemingly odd repetition exercise in which

actors can only repeat what their scene partner says. He often stated that “what you do doesn’t depend on you, it depends on the other fellow.”⁵ Others, like Ruth Maleczech, speak of behaviors “bouncing off” the other actor and subsequent actions coming “directly from the response of the other actor.”⁶

In AI, much more emphasis can be placed on the emergence of intelligent behavior from an agent’s pure reaction to other agents, and in particular to humans who often exist in the agent’s environment. We may look to exercises executed by actors when practicing reaction, repetition, and breaking away from mirroring for possible insight into the mechanism of mutual responsiveness that could prove crucial for intelligent behavior.

Continuous Inner Monologue

Perhaps the most significant contribution of the Stanislavski system was the elimination of so-called “representational acting”, a beat-to-beat development of purely external expression. Instead, modern actors work in terms of overarching motives, objectives, obstacles, and intentions, which eventually lead to action selection.³ Moreover, actors are expected to carry out a continuous *inner monologue* throughout their stage presence, leading up to their lines and preventing their text to be uttered as a series of isolated parts.

Maintaining continuity through inner processes is also good advice for artificially intelligent agents, and prescriptive if we are aiming for naturally behaving agents. This should be of particular note for those of us building robots interacting with human counterparts. If we are to steer away from the command-and-response interaction so prevalent in our dealings with artificial agents, action selection should not stem only from the most recent input but grow out of a continuous and multi-layered stream of constantly changing internal parameters. How to reconcile this advice with the requirement for mutual responsiveness laid out above is a worthy challenge for the AI community, one into which the acting discipline – not a stranger to this paradox – might also have relevant insights.

Summary

Well outside of the spotlight of even the most interdisciplinary of AI research, actors have for decades confronted problems that are surprisingly related to the ones the AI community tackles. The guidelines described in this document are examples indicating the potential benefit that the AI community can glean from a closer look at a discipline that has repeatedly concerned itself with the faithful production of artificially intelligent behavior.

References

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