Thesis Project Portfolio

The Digital Theatre: Utilizing Computer Science to Create an Emotional Aesthetic Within a Live Performing Arts Setting

(Technical Paper)

How Projection Technology is Changing the Performance Art Industry

(STS Research Paper)

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Executive Summary

Performance art and theatre have established themselves as enduring pillars of society, encompassing dramatic storytelling, information dissemination, and captivating spectacles. This pervasive cultural influence has given rise to a dedicated field of performance and entertainment theory, enhancing our understanding of how performance shapes society and how society, in turn, shapes performance. Given its deep integration into society, performance art naturally engages in a symbiotic relationship with evolving technology. Technology plays a vital role in theatre, enhancing performances and expanding creative possibilities. Its integration reflects society's embrace of innovation and its desire for immersive storytelling experiences. Both parts of this thesis seek to further investigate and understand the complex role of technology in theatre; the technical portion explores how technology implementations can effectively address functional problems within the theatre space, while the STS portion aims to assess the level of acceptance and meaningful utilization of such technology by the social actors behind it.

While technology's involvement in performance art is nothing new, the rapid advancement of digital technologies in recent decades has sparked debates on the extent to which classical works should embrace these new special effects capabilities. In particular, innovations in projection and video art design have the potential to enhance or detract from the authenticity and immersiveness of theatre as a sacred, distinctly human space. For the STS portion of this thesis, such controversies and conflict between theatre and technology will be explored, for the purpose of analyzing how these technologies have transformed the theatrical landscape and challenged traditional notions of "classic" performance art. Through the use of interviews and literature review, this investigation will engage with the social actors involved with the incorporation of projection technology in live theatre. In doing so, it will provide a closer

examination of the impact these technologies bring to the production and rehearsal process, how and where such technologies are used, and the general reception of this emerging direction in theatre among theatre-goers and artists alike. While such reception of projection technology was predominantly positive, characterized by anticipation for future possibilities, a consensus among professionals in the space that its effectiveness and value lie in its judicious and purposeful application.

In connection with the research done on the complex relationship between theatre and technology, the technical topic portion of this thesis will further explore how projection art technology has been applied in the UVA Drama Department specifically. Since projection technology is relatively new to the UVA theatre scene (at least, when compared to more seasoned technologies such as sound and lighting design), there were found to be shortcomings with regards to the projection system implementation in the Culbreth theatre for the UVA Drama Department's production of *When The Rain Stops Falling*. For this production in particular, show designers were faced with the unique challenge of incorporating extensive use of projection technologies on a level that had yet been done at UVA. Projection designers, technicians, and operators undertook the complex responsibility of crafting and programming a series of projected videos onto the theatre set, with the intention of aligning the creative vision and technological constraints to ensure a harmonious integration of visuals within the production. This technical topic will cover what functional challenges and shortcomings were faced, how designers and operators managed to leverage resourceful programming solutions to resolve those shortcomings, and the degree to which such solutions led to a successful production. While there are still ways the process could be improved in the future, the creative teams behind the production are satisfied with the show's success, and believe the creative vision was delightfully actualized.

Overall, both elements to this thesis, both STS and technical, come to the consensus that projection technologies have a strong role in theatre, and can be applied in fantastic ways to build an immersive and captivating experience for the audience. This, however, can only be achieved if the technology is modeled and guided by the human artists behind the scenes, as improper application or incorporation without defined purpose may lead to an unrewarding experience that deeply discredits the long and arduous design process. It is crucial to understand the impact of technology (such as projection art) on theatre because it shapes the way stories are told, enhances production capabilities, and significantly influences audience experiences. Understanding this effect allows us to appreciate the evolving nature of theatre, explore new artistic possibilities, and examine the broader relationship between technology and culture in our society. For future investigations, it is recommended that more research be done on the ever evolving theatre technology industry, as exciting innovations continue to spring up in the mainstream at a faster pace than ever before.