

Karen Zipor

MAS Fourth Year Award Proposal

April 1, 2021

Researching New Ways to Integrate Technology into Theater

Project Description:

I am proposing research in the field of interactive technology in performance. As a double major in Drama and Computer Science, this research will also be applied to my CS Distinguished Major research, where I will design or program a new way to use interactive technology in theater. By the end of the year, I'd like to create a live performance employing the technology I mastered in an upcoming project within the Drama Department, such as the Lab Series. To find where the future of theater technology lies, I first must purchase and experiment with these interactive hardware systems up close.

There is much cause to study interactive technology right now. The pandemic greatly hurt the theater industry, and at the same time, people are looking for more active interaction in their entertainment (such as the significant growth of the gaming industry). As a Drama and Computer Science student, my undergraduate experience has been a collection of projects dealing with technology combined with live or video performance: virtual reality, live video projections, and animation. Thus, my advisor for this research will be Mona Kasra, professor for Digital Media Design at the Department of Drama. We have done research together before, specifically studying how to create an immersive, virtual reality experience with 360 film. There is still much research to be done in this field, such as how a user could interact with animation in real-time, how to blend 2D art into a 3D world, and of course, making sure these complex technologies are accessible for artists to use. Therefore, now is a critical time to research and enhance the usability of these tools for VR.

As well, I was heavily inspired by prior research and performances done in this field. I've looked at prior work done by researchers, developers and creators in computer graphics and interactive techniques at conferences, such as [SIGGRAPH](#). A related tool commonly used in VR is the motion capture suit — a revolutionary piece of equipment that allows the user to record their movements in a 3D space, vital to the impressive CGI we all know today. In addition, such motion sensors can be strapped to actors that perform live. For instance, I was inspired by how

the [Royal Shakespeare Company](#) staged a show during the pandemic, where the actors could interact with a virtual, projected forest landscape. Even the audience could directly influence the performance watching from home. They seamlessly blended sensors and interactive technologies with live performance, and I could accomplish a similar product myself using full-body sensors.

I plan on spending this upcoming year researching and experimenting with these interactive forms of technology, even attending the [2021 SIGGRAPH](#) conference virtually. Over the summer, I'll examine a few of these interactive techniques, such as VR and motion capture, with the goal of improving upon the interactive system for the user — performance artists. Finally, I'll create a conceptual design of how a better user experience could be achieved or how this technology could be innovated further. I'll evaluate the quality of my research by sharing my ideas to Mona and other experts in the field, including my Computer Science professors. My ultimate goal is to create a live event in the Spring of 2022, showcasing the technology I mastered in an upcoming project within the Drama Department, such as the Lab Series. The final project will be a time-based event such as a screening or a live performance, depending on the logistics of the event and space.

In conclusion, this research will be the ultimate capstone for a multi-disciplined artist like myself. I'll greatly utilize the skills I obtained from my Drama and Computer Science classes to find where the future of theater technology lies.

Timeline:

Summer 2021

- Do research by purchasing tools to experiment with. Master how to use them.
- Attend SIGGRAPH 2021 Virtually.

Fall 2021

- Meet weekly with Mona to discuss the progress I'm making.
- Do pre-production work for a final project showcasing the technology (script, auditioning, blocking, etc.)

Spring 2022

- Film/rehearse my final project.
- Do any post-production editing and publicity.

April 2022

- Present my research to the Miller Arts Scholars and the Computer Science Distinguished Major Director. I will showcase videos and/or pictures of the final project I worked on using the technology.

Budget:

Expense	Description	Total (Estimates)
Adobe Subscription	Access to integral programs like Premiere Pro and After Effects.	\$240
Promotional Materials	For publicizing at festivals, posters, etc.	\$200
Production	For costumes, props, sets, etc.	\$400
HTC Vive	VR goggles similar to the Oculus.	\$500
Software Licensing Fees	From using Adobe content or from new software (like DaVinci Resolve Studio).	\$200
Purchasing Music Rights/Composition	I've worked with a great student composer before who I'd like to compensate for his time.	\$300
SIGGRAPH Tickets	Virtual conference on computer graphics & interactive techniques.	\$100
Sensors & Other Interactive Hardware		\$1000
V-Ray	Necessary for rendering beautiful animations.	\$70
Total Cost:		\$3010

Note: Some of these budgeted items are estimates, so my total incurred costs for this research and production may go over or under \$3000. I will ensure that, no matter what, if my project ends up over-budget, I will pay for the extra costs myself or apply to other grants to cover the costs.

Arts Involvement:

I have been deeply involved with the arts community at UVA. During my first year, I immediately engaged with the Drama Department, acting in Play-in-a-Day and Acting 1. Then, I joined the First Year Players and performed in two leading roles: Florinda in *Into the Woods* and Edwin Drood in *The Mystery of Edwin Drood*. In the Spring, I took Video Design, where I first learned how to use video projections and body-tracking.

In my second year, I portrayed Tilly in my first Drama Department show, *She Kills Monsters*. At the same time, I was also Mona's assistant designer for the video projections, attending all the design meetings and finding and creating media for the show. I took Directing 1, Lighting Design, Musical Theater, and voice lessons. In the Spring, I acted in the 2020 New Works Festival and was a choreographer for the First Year Player's production of *Kiss Me, Kate*. At the same time, I worked on Mona's MEAD project, a university-funded research project dealing with Virtual Reality.

Due to the pandemic, our research continued into the summer, and I finished by making a 360 short film on my own at home. I also acted in the Virginia Player's streamed original show, *Watch Me*, and worked as a graphic designer and publicist for the IMDB-credited web series, *Quaranteens*.

In my third year, I participated in the Drama Department's production of *Love & Information*. I employed many of my filmmaking skills at once: directing, editing, acting, and graphic design. My original one-act, *A Half-Hour Ride North*, premiered at the 2021 New Works Festival in the Spring. I acted in an Overcranked short film, and I learned about stage managing, producing, and publicity in many classes and labs in Drama. I took two Art Scholar seminars.

Finally, I took leadership positions in many UVA organizations. After being on FYP's publicity committee for over a year, I became their Publicity Chair. I was also the Virginia Player's Artistic Director and PR Chair for two semesters in a row. Currently, I am the Miller Arts Scholar's Marketing Chair, working alongside the other student leaders of this organization.