EXPERIMENTING WITH THE ART OF MOVEMENT THROUGH TECHNOLOGY

JOANNA RUSSELL BLISS

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EXECUTIVE SUMMARY

Some universities and academic libraries with comprehensive arts programs have been investing in technology labs to allow dance students, faculty and staff to experiment with technology for choreography and performance. The concept began at The Ohio State University, but other universities, like Barnard College, have adapted the idea and added other concepts to it. A worthwhile lab would have a great deal of technology that allows for motion capture and filming, ways to explore the alteration of sound and image, a performance space, and more – which would require a large investment of time, money, and space. Newer labs have found that extensive programming and marketing is needed to educate the community about the purpose of the lab and what can be done there, but it is a worthwhile investment for the university, allowing its people to play with the technology, and to experiment with what is possible.

INTRODUCTION

The idea of using technology to measure movement is nothing new at modern universities. Many use technology to study movement for research; in Texas alone, you can find the Locomotor Performance Laboratory at Southern Methodist University, the Human Movement Performance Lab at the University of North Texas Health Science Center at Fort Worth, and the Neuro-rehabilitation and Biomechanics Lab at the University of Texas at Austin (Southern Methodist University, n.d.; The University of North Texas Health Science Center at Fort Worth, 2020; The University of Texas at Austin, n.d.) These laboratories and research facilities are often associated with physical therapy or kinesiology programs, and their goal is usually to study movement in order to make treatment of injuries better, or to condition athletes to be faster or stronger.

But some universities are exploring the *art* of movement through technology. Groups like the Advanced Computing Center for the Arts and Design at The Ohio State University (henceforth to be referred to as ACCAD and OSU, respectively) and the Movement Lab at Barnard College are using technology to encourage students and faculty to explore and experiment in the arts (ACCAD, 2020d; Barnard College, 2020). These universities are encouraging their communities to learn about the use of technology by playing with it, just as the LEGO Foundation (2016) discussed professional learning for their employees.

Similar to makerspaces, some of these labs live in the library, while others are elsewhere on campus, but the goal is the same: Experiment with technology in the creation of art. As ACCAD explains their mission on their website, they are "a collaborative think space, a place to make, create, imagine and above all connect," (ACCAD, 2020a, para. 1); while ACCAD does not reside at the library, the Fine Arts Library at OSU acknowledges them as a close partner (OSU, n.d.). These labs are usually on campuses with robust artistic programs, as well as generous donors, to make the investment in the technology worthwhile (and feasible) for the community.

Note: While ACCAD works with myriad artistic programs at OSU, this brief will focus on their exploration of movement and dance at their Motion Lab.

ORIGINS

ACCAD is the mother of all movement labs. Art professor Charles Csuri at OSU began researching the fusion of computer technology and artistry in the early 1960s, creating some of the earliest computer animations. He formed the Computer Graphics Research Group (CGRG) in 1971 to bring together computer programmers and art students. This led to the creation of proprietary software used to create computer animations, as well as lucrative commercial projects (ACCAD, 2020c).

The CGRG evolved into the Advanced Computing Center for the Arts and Design in 1987. The goal of the center was to "provide computer animation resources in teaching, research and production for all departments in the College of Arts and Sciences at Ohio State," (ACCAD, 2020c) – which includes the Department of Dance. Within 10 years, they were not only doing collaborative research on campus, but they had become a major player and educator in the artistic community in their home city of Columbus, working with the city's

> **The Movement Lab [at Barnard College] is a flexible modular space for movement research, exploration, production, collaboration, and interdisciplinary interaction. The Lab's trans-media function serves to enhance critical thinking and learning through body and brain connection as it seeks to explore emerging trajectories in art, science and technology (Barnard College, 2020).**

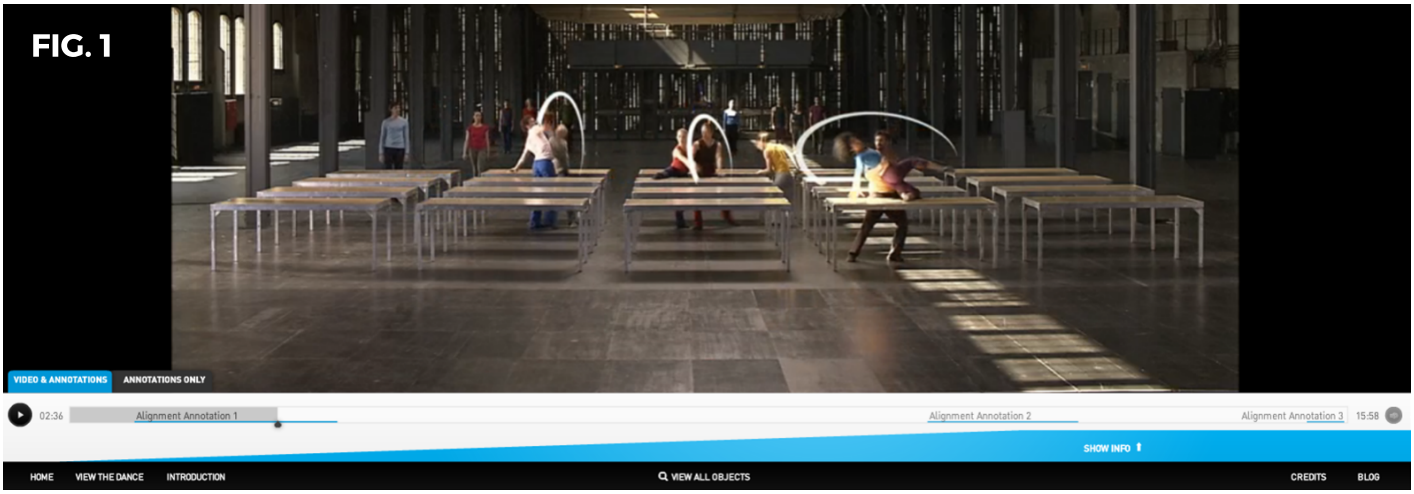
art museum and ballet company to create a "consortium of arts, education, and technology professionals for the research, development, and implementation of distance learning programs in the arts throughout the Columbus public schools," (Gee, 1997, p. 13).

When Barnard College decided to build their Movement Lab a few years ago, they sought out the experts at ACCAD's Motion Lab to help them develop the exploration space, housed at the Cheryl and Philip Milstein Center for Teaching and Learning (Leal, 2019). This new library, which opened in 2018, "brings together current technologies and learning spaces in interactive settings," (Barnard College, 2020). It embodies the essence of Learning 2.0, allowing students, faculty and staff to play with new technology and explore its role in the creation of the arts.

TECHNOLOGY

As with their work in the field of animation and artistic design technology, ACCAD led the way in movement technology, often creating the technology in ACCAD that researchers in the dance department could use. For example, a leader in the dance notation field and professor at OSU, Ms. Lucy Venable, worked with staffers at ACCAD to develop LabanWriter, a software to record dance notation, in the 1990s (Department of Dance, 2019; Kriegsman & Ann, 1999).

In the early 2000s, choreographer William Forsythe worked with ACCAD and the OSU Department of Dance to create an interactive dance experience, *Synchronous Objects for One Flat Thing, reproduced*. The website (Forsythe, 2009) allows viewers to select what they want to explore – the sound, the movement, the data – and reproduces the piece (and pieces about the piece) in several different ways. It documents Forsythe's creative process and allows users to explore the dynamics of the choreography through schematics, essays, and data in a way not often seen.



A screengrab of the Alignment Annotation module. Reprinted from *Synchronous Objects for One Flat Thing, reproduced,* Forsythe, 2009.

What is truly remarkable – and reflects the collaboration between technology and creativity on this project – is that articles were published about the project in both *Dance Magazine* and *Digital Creativity* (Sucato, 2009; Hansen, 2011). Sucato, a dancer, explores the choreographic questions Forsythe was trying to answer in the piece: "What are the organizing structures behind a piece of choreography? How can these be made visible using interactive screen-basedmedia? And what IS the best way to communicate them?" (p. 50). Hansen analyzes the project as a programmer, exploring movement and choreography to be used in digital interactions. Both choreographers and programmers can study and learn from the project, as Forsythe and the team at ACCAD played with the technology in order to explore what was possible, and documented how they came to those creative and technical decisions.

FIGS. 2-4

> **The Motion Lab [at OSU] is a rapidly reconfigurable interdisciplinary space for motion research and advanced technology performance investigation (ACCAD, 2020e).**

Images of the Motion Lab at ACCAD in use.
Reprinted from *Motion lab*, ACCAD, 2020.

Today, the libraries of available technologies for exploration at both the Motion Lab at ACCAD and the Movement Lab at Barnard College are extraordinary: Motion capture cameras, virtual reality headsets, digital sound boards and electronic lighting rigs; workstations with tech-specific software, and ways to create digital projections for performance spaces. The full list of hardware and software at the Motion Lab is four pages long (ACCAD, 2019b), and the list of equipment at the Movement Lab is similarly detailed (Movement Lab, 2020b).

The Motion Lab has developed a thorough protocol for the use of their technology, requiring prospective users to take classes or workshops on how to use the equipment before submitting proposals for the use of the technology and space (ACCAD, 2019a). In addition to shorter workshops, ACCAD staff teach a full array of for-credit courses through OSU, and partner with professors in the dance and music departments to teach interdisciplinary courses. While the courses through the Movement Lab are not a prerequisite for lab usage at Barnard College, both universities offer courses developed with the dance departments at their respective universities that encourage exploration of choreography and technology (ACCAD, 2020b; Movement Lab, 2020a).

Image of the Stillness Lab at Barnard College, taken by G. de Lancey. Reprinted from *Stillness lab,* Movement Lab, 2020.

The team at Barnard College has used the foundations built by ACCAD to ask how they can create an inclusive community through the programming offered by the Movement Lab, just as Christian Lauersen (2018) told librarians that "we need to open our arms and ask people to dance to create inclusion," (What do we talk about when we talk about inclusion?, para. 6.). In addition to technical classes, programs include both technical and creative workshops, a salon to share works in progress and receive feedback, and even a stillness lab – a time once a week where the space hosts a meditation hour to bring students together to relax and heal (Movement Lab, 2020c, 2020f, 2020g). The space is also associated with a film festival that focuses on social justice within the world of dance film, but the festival, created by Ms. Christa, pre-dates the space (Movement Lab, 2020d; G. Christa, personal communication, November 20, 2020).

The biggest challenges of building such a technical environment are a) the physical space and b) cost. Both are expensive to invest in. When asked about the planning for the Movement Lab, Director Gabri Christa told *The Columbia Spectator* (Leal, 2019) that her flexible approach to the space included its investment in technology: "'That's why I didn't go in with tons of technology right away, because we can grow. …[It's] more low-key than installing high-end $300,000 or more equipment and have nobody who can operate it, or nobody that's interested in the research." (para. 10). As the Movement Lab is still in its early stages, Christa is using her student and faculty population to help determine what would best work in the space, "let[ting] 'beta' be [her] friend," (Stephens, 2008).

RESEARCH

ACCAD has become the center of a community for collaboration and research focusing on the intersections between movement and technology; all research roads on movement and technology lead back to ACCAD. But the publications from ACCAD focus on the software and projects they have created in conjunction with the Department of Dance, rather than defining how to implement a space like the Motion Lab on other campuses. This is why Barnard College turned to the people at ACCAD when planning for their Movement Lab; there isn't a body of work to use as a foundation for such technological planning.

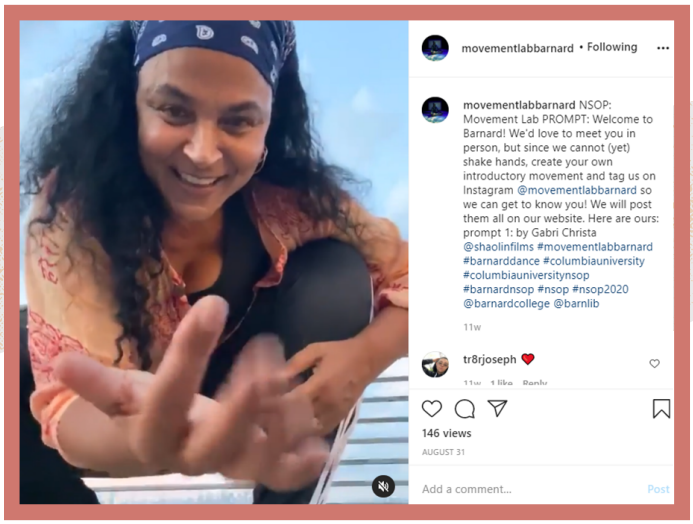
If a university is curious to build a similar lab, their first step should be to become familiar with these two. Read through their websites, and learn about the various projects they have been a part of. Consider whether the research cohort at their university has enough artists and researchers to warrant the investment in the technology and the space. And reach out to the experts at the Motion Lab and Movement Lab to ask what they have learned from their experiences.

IMPLEMENTATION

When selecting the technology for a space, librarians and directors need to talk to their community to determine what they need. Beware of the technolust discussed by Stephens (2008) – the library should invest in technology that their community will use. As Christa explained in a panel for Dance/NYC, when discussing the use of technology in dance performances, "My critical thought is about why would we use technology and really think about it, really clearly – when it is necessary, when is it just a gadget, when is it needed?" (Dance/NYC, 2020).

As the library prepares to launch their lab, they need to consider how to promote it to their community. The plethora of programs offered by the Movement Lab shows how they are trying to engage students and faculty, as noted by Christa in her interview with *The Columbia Spectator* last year (Leal, 2019). Even as COVID shut down the physical space, the Movement Lab engaged with students through Instagram, posting movement prompts on their website and Instagram page that ask students to reply with their own movement videos (Movement Lab, 2020e; Movement Lab [@movementlabbarnard], 2020).

FIG. 6



A screengrab of a prompt for movement featuring Gabri Christa. Reprinted from Instagram, Movement Lab, 2020.

Engagement and marketing are critical for a new lab to show the community what is possible there, particularly as it is a new concept that some may not have worked with before. ACCAD does not seem to do a lot of engagement or marketing, but it is most likely because their reputation means that students, faculty and staff – and outside groups like Barnard College – seek them out for programs and services.

Finally, the library needs to continually assess their array of technology and programs to make sure they are working for their community; as Casey & Savastinuk (2007) warn, they don't want to Plan, Implement and Forget (p. 39). A new movement lab needs to make assessment a part of their approach to the new space, acknowledging that some programs will go away and new ones will take their place in an environment of "institutionalized change," (p. 40). Christa seems to be creating such an environment at the Movement Lab, explaining to Leal (2019) that she is excited to let the community at Barnard College shape what the Movement Lab will become, saying, "'we can start making it into something that is truly much more generated by ideas and by the students, and not sort of an imposed outside idea of what it should be,'" (para. 12).

CONCLUSION

As technology evolves, it becomes integrated into performances, like with the Screendance philosophy taught by Christa that sees dance and film as interwoven and interdisciplinary, rather than merely recording a performance created for a stage (Movement Lab, 2020a). Movement labs give dance students and future performers the chance to experiment with performance-related technology that they could not afford on their own; in Christa's words, it is a "sandbox" in which "we play, we experiment," (personal communication, November 20, 2020).

These two labs are in very different stages of development. The Motion Lab at ACCAD has been an established force on campus at OSU for more than 25 years; the Movement Lab at Barnard College is in Phase 1 of their investment in technology and programming, and it only opened last fall – to be closed six months later due to a pandemic. But both have benefitted from common visions that place the students and faculty at center – what technology do they need to innovate and explore? And how can we make that happen?

Some might question why investing in exploration for the arts is a worthy cause during a pandemic, and rightfully so. But as Stella Adler supposedly said, "Life beats down and crushes the soul, and art reminds you that you have one." More than ever, we need to remember our humanity in order to save it. If art can help us remember our humanity – through music, through paintings, or, yes, through dance – perhaps we can come together and make it to the other side of this crisis.

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