Creative Activity Statement

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In today's media environment, the way journalists report, tell and publish stories is constantly changing. One of the catalysts for change is new technological advancements that create new opportunities for the media and its journalists to develop more engaging and informative storytelling methods. It is this nexus of storytelling, problem solving and technology that inspires me and at which I excel. My mission in all my creative endeavors is to leverage storytelling, design and technology to do the most good for the greatest number of people. My objectives are to build the school's reputation for strong storytelling innovation, drive the industry forward through the development and use of emerging technologies to enable journalists to tell the stories that need to be told in unique, informative and immersive ways. I work to accomplish this mission creatively in three ways: 1) ideating and developing new storytelling technologies 2) testing, failing and iterating on a concept until it works and 3) building partnerships and collaborating with industry leaders to test and bring these technologies to greater local and worldwide acceptance.

CREATIVE ACTIVITIES

My mission motivates each of the creative activities I have launched since joining the UNC School of Media and Journalism faculty in 2011. I have developed new storytelling technologies, all which have promoted my (and the school's) reputation as an innovator and thought leader in the industry. I have partnered with leading publications across the field from *The New York Times* and *The Washington Post* to local publishers WRAL in Raleigh, WTVD in Durham and *The News Reporter* in Whitesville, N.C. I have also raised or assisted in raising more than $11.3 million to fund projects through grants and awards. For example, I am leading innovation, along with three other journalism school colleagues, on the $4 million Knight Foundation grant awarded to the UNC School of Media and Journalism in 2015 that funds the Center for Innovation and Sustainability in Local Media. I have also received more than $1 million from various sources to fund innovation within the school.

In addition, each of my creative activities build upon one another as I draw lessons learned or technologies created from previous creative endeavors to inform the development of new projects. For example, the non-touch gesture interface called "Intensive Care for a Damaged Dome" I designed with a $20,000 award from Washington Post Innovation Fund and presented at the White House Correspondents' Dinner in 2015 informed my future forays in virtual reality and augmented reality which use gestures for user interfaces.

I share the lessons learned from my creative activities with students through my classes, in the Reese News Lab as Chief Innovation Officer and by engaging students to work on my innovations in the lab.

CREATIVE INNOVATIONS AND TECHNOLOGICAL ADVANCEMENTS

Non-Touch Gesture Interfaces

In 2012, I collaborated with the Massachusetts Institute of Technology Media Lab through an open-source project DepthJS Library to design a non-touch gesture interface to consume news and social media. It allows users to interact with the content on their phone, tablet or other device without ever touching the screen or mouse. *The New York Times* adopted the research and concepts I developed when they created a gesture-controlled news application Gesture News, the first of its kind. By 2015, the concepts presented were found in various other technologies such as virtual reality and augmented reality headsets and I have helped media properties across the country to implement gestures into their media presentation.

In collaboration with *The Washington Post*, I built upon the non-touch gesture interface to create a 3D model of the Capitol dome that was being remodeled at that time. I presented the technology at the 2015 White House Correspondents' Dinner as part of future technology exhibit and received a $20,000 award from Washington Post Innovation Fund to develop the technology.

FilmSync

I developed a second-screen application called FilmSync that allows users to access supplemental, relevant content on their mobile device that syncs with a live, recorded or streamed event on television. FilmSync provides the opportunity for broadcast news or documentary producers to engage viewers in real-time by offering additional content to the viewer through their application that syncs with and supplements the video content. To build the application, I used open-source digital watermarking technologies and pitch-detection processes in a unique way to provide delivery of server-based content in sync with linear presentations. I presented the technology to the film school at University of California and demonstrated the technology to developers at Netflix. The application earned a $35,000 Knight Prototype Grant in 2014.

Virtual Reality as a Storytelling Medium

After years of investment and development, virtual reality remains a nascent technology. However, as it is adopted more universally, its storytelling potential dramatically increases. By immersing the viewer in the experience of the scene they observe, the experience moves the viewer from the role of consumer to participant and elicits empathy in an entirely new way. Recognizing this potential early, I have spent the past several years building, piloting and iterating multiple products that aid journalists in capturing footage to use in VR experiences. I am also using VR storytelling for educational purposes such as the Ernest Shackleton virtual reality project for the Kenan-Flagler Business School.

Virtual Reality: "Out of the Blue: Galapagos in 360"

In 2016, I pioneered innovation in virtual reality by producing a 360-degree video experience in the Galapagos Islands for *The Washington Post*. This was the first 360 video project published by *The Washington Post* and included the first-ever news footage of 360-degree underwater video. I also worked with the Post's design team to create a unique user interface that presented the VR content in an interesting way.

Virtual Reality: Semi-Autonomous Robot

The second VR innovation is Ducille, a semi-autonomous robot that captures smooth 360-degree video content. It can be controlled remotely or be programmed to follow an on-camera reporter. Prior to Ducille, capturing smooth VR footage was a difficult task, especially in a news situation. I presented the prototype during the opening keynote at the Journalism Interactive Conference, the top academic media innovation conference, in October 2017 and in 2016 at the Online News Association (ONA) conference, the largest professional organization conference. *The Washington Post* has used the first experiments of robot technology in covering news at the 2016 presidential conventions and WRAL used it for local news gathering in 2017. I am currently working with *The New York Times* to see how the robot can be used in daily 360 productions.

Virtual Reality Drone

A third innovation solves the same problem as Ducille, but has a different use case—aerial 360-degree video. The custom-built large drone captures smooth 360-degree video aerial content for news and film productions and stitches it together seamlessly. My innovation includes the development of a custom gimbal with an outside company that enables stabilized content not available previously. *The New York Times* will use the drone in an upcoming international project.

Faciem AR

Faciem (Latin for face) uses Microsoft's HoloLens and facial recognition algorithms to present the names, titles and publicly-available information about public figures to journalists via a heads-up, augmented reality display allowing journalist to identify public figures at events in their community.

The project is in the commercialization phase and has since been modified for government security applications. Faciem AR was one of 20 companies invited to present and demo to the U.S. Army's Thunderstorm 18, an elite showcase of new technologies that solve existing problems facing the armed forces. Thunderstorm is a classified, invitation-only three-day event presented by Southern Command Special Forces and Penn State University. I was also invited to present Faciem AR to the Transportation Security Administration for potential use in securing airports.

CREATIVE FUTURE

As professors, we have the responsibility to drive and shape the industry through innovative research and creative activity. As a technologist and visual journalist, I am uniquely qualified to contribute to the industry's future through both education and innovation. As such, my creative mission and body of work have helped position myself and the UNC School of Media and Journalism as the leader in designing innovative storytelling methods for the next generation of storytellers. Through my commitment to innovation, storytelling and collaboration, I foster the development of the technologies and techniques that will shape the industry's future.