Chapter 27

The Artist's Move:
The Discipline of Dance and Big Data

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ABSTRACT

Dance and technology have been partners from an early age. In 1892 Loie Fuller recognized the potential in the latest theater lighting technologies that would enable her to creatively explore her dance and dance performance. Like Fuller, as technologies emerged to the world at large, dance artists began to explore the effect such technologies would have on their art. Eventually, explorations of dance and technology focused on how computers contributed to the performance of dance. This chapter will review the history of dance and technology culminating into a discussion of the next evolution of technology in the discipline of dance, the potential computational thinking and Big Data bring to the visualization of the creative process. Particular emphasis will focus on how the work, Synchronous Objects One Flat Thing reproduced, exemplifies the convergence of dance, technology, Big Data and visualization.

INTRODUCTION

We live in an age of the screen. Technology is pervasive in our society. According to the PEW Research survey in 2015 on technology device ownership, 68% of U.S. adults have smartphones and 45% of adults own tablet computers (Anderson, 2015). Smartphone ownership has impacted desktop and laptop adoption as individuals rely more on their smartphones for multi-purpose use. People have access to information and social networks 24/7. The ability to communicate across a variety of technology tools and social strategies has expanded into the immersion of social video. With social video, we have moved from a textual to a visual culture. Studies into this culture have led us to research visual literacy. Howells and Negreiros (2012) book entitled Visual Culture discusses the challenges of a visual world. "We are surrounded by increasingly sophisticated visual images. But unless we are taught how to read them, we run the risk of remaining visually illiterate" (Howells & Negreiros, 2012). Big Data has entered into

the visual culture arena with visualization applications that are designed to show relationship, patterns, animations and much more. Skiba (2014) recognizes the rise of Big Data for her discipline of nursing and asks the poignant question,

Now, as visual literacy merges with data literacy to form the new concept of data visualization literacy, we must ask: Is this a competency that nurses need? A review of the literature indicates that the answer is yes. Nurses need to understand and interpret the visual displays of data in their practice. (Skiba, 2014)

There is no question that the amount of data we can access is growing exponentially. Technology advances have opened opportunities for data gathering and analysis. High Performance Computing initiatives provide competitive advantage, predictive analytics and scientific discovery. With so much data and technology on hand, our world today is infused with the need for data interpretation beyond spreadsheets. Visualization application development is in high gear providing a view into relationship and pattern which shows meaning. These applications are not restricted to scientists but are mainstream targeting a visually hungry population. Just like the emergence of social video, visualization applications are available for anyone to explore and use whether for research or fun.

Taking your data and transforming it into charts, graphs or interactive maps has become easier through the development of visual applications for mass consumption. N. Sharma (2015) lists 14 data visualization tools for thought for developers and non-developers. Data Driven Documents, also known as D3.js, uses your document format such as html, css and svg to create dynamic visual representations. Primarily for developers, D3 produces a variety of data visualization graphs, charts and maps. Plotly is a good application for non-developers. Sharma describes Plotly as an easy to use data analysis and charting tool. When you visit the website, you can easily create an online dashboard with your information. And don't forget the volume of data at our personal fingertips through wearables. Fitness bands provide us a view of our sleep patterns, fitness goals and mileage. These are but a few data visualization developments for our everyday use and analysis.

We live in an age of data. As discussed, visualization applications give meaning to this data from the science laboratory to the personal heartbeat. Skiba (2014) reminds us in her overview of Big Data and Nursing,

In a blog post on the National Center for Healthcare Leadership website, Garmen (2013) spoke to the emerging competencies needed in the era of Big Data and the LHS. Along with statistics and "contextual knowledge of the healthcare organizations the data represent," there is also a need for "advanced competencies in 'storytelling' — translating statistics into practical wisdom and action, through compelling narrative and visualization. (Skiba, 2014)

This chapter unfolds how the discipline of dance has entered into an age where technology has shaped and formed new vistas for performance and learning. The discipline of dance has not gone unaffected by the digital world. Dance has a rich history with technology. This chapter will unfold a brief history of dance and technology from its progenitors to current developments. How computational thinking and the artist's mind are uniting to create beyond the stage in compelling 'storytelling' Big Data projects will be looked at carefully. Finally, the review will be done of a dance work which brings together computational thinking, Big Data and visualization.

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