Introduction

The terms ‘art’ and ‘scientific’ have been linked ever since the advent of the university system in Western Europe, largely due to the invention of the printing press. Since then, the fruits of humanities, in particular, art and engineering, have been used to represent scientific results and vice versa. This association has led to the creation of a certain type of art known as scientific illustration, also referred to as ‘applied arts’. These types of artwork are created for the purpose of education, especially in the sciences, and are intended to convey knowledge or understanding of a particular scientific concept or phenomenon. Scientific illustration is a vital component of science communication, as it can make complex ideas more accessible to the general public. However, the relationship between art and science is not always straightforward, as artists may have different motivations and perspectives than scientists. This can lead to a potential disconnect between art and science, as artists may not fully understand the scientific concepts they are illustrating, and scientists may not fully appreciate the aesthetic qualities of the artwork. This can result in a lack of collaboration between the two fields, and a limited understanding of the potential synergies between art and science. Additionally, the lack of recognition for the role of art in science communication can result in a lack of funding for art-related projects, which can further limit the potential of art and science to work together.

Beauty


Oddness

Humans have an intuitive understanding of fluid physics. After all, we are basically bags of water, and spending our lives submerged in an ocean of air. Thus, unexpected fluid physics elicit an intense fascination. Non-Newtonian fluid behaviors and high speed photography of fluids are particularly popular.

Power

The aesthetics of power are all about control, control over fluid physics, over money, and over our lives. This aesthetics is prominent in images of aerospace technology such as fighter aircraft and rockets, and in images of controlled extreme flow conditions such as shock waves and high Reynolds number fluid jets.

Context and Future Work

The exploration of fluid aesthetics is part of a study, “The Power of Aesthetics”, that examines how the physical and aesthetic properties of fluids can influence our perception of power. This study aims to create a framework for understanding how the aesthetics of fluids can impact our experiences of power, and how these experiences of power can influence our perception of aesthetics. The study involves a combination of qualitative and quantitative methods, including interviews with experts in fluid physics and aesthetics, and surveys with participants who are exposed to different types of fluid aesthetics. The results of this study will be used to develop educational materials that can help students understand the relationship between aesthetics and power, and how this relationship can be leveraged to create more effective educational experiences.

Destruction

The aesthetics of destruction represent an inverse to the aesthetics of power. Destruction represents a total loss of control, of order. Representations of explosions, wildfires, thunderstorms, tornadoes, tsunamis, and avalanches (a type of granular flow) typify this aesthetics. For example, large scale fluid dynamics such as storms, tornadoes, floods and wildfires are often responsible for massive destruction, yet humans draw pleasure from watching such destruction from a safe distance. Can this voyeurism be turned to our advantage in communicating science?

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References

Unless otherwise noted, these images are drawn from student work for the Flow Visualization course (MEEN 4151/Film 4200). Additional examples can be found on the web, for example a curated site collecting professional artists working with fluids on a medium can be found at http://www.tvsc.org/fluid-visualization, and an extensive collection of fluid visualization images used for scientific purposes is available at http://www.hpl.hp.com.

[6] [https://www.behance.net/gallery/Fluid-Dynamics-09/3435685](https://www.behance.net/gallery/Fluid-Dynamics-09/3435685)
[9] [http://www.imgur.com/gallery/TuW-m1F](http://www.imgur.com/gallery/TuW-m1F)