

The Art-Science Experiment

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Background

One of antiquity art was often interdisciplinary with the sciences as a means for further research and learning. Though in academics, art is often isolated as its own discipline and lacks integration across the natural curriculum. The project explores the art-science environment in the laboratory compared to that of the museum and the academy. In addition, it will explore the expansion of art specifically scientific in nature with the influx of technology and scientific advances.



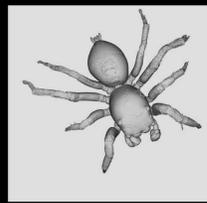
Purpose

A visual portfolio that bridges the area of academic art and science can be translated into the fields of art and biological science. The models are created within the laboratory of Entomology and Nematology at the University of Florida to help us understand how art is used in scientific exploration today compared to antiquity.

Acknowledgements

Thank you to the Taylor Lab for allowing me to work in the laboratory along side many entomologists and for the 3D spider files that were created by a team of students as part of UF's Insects Alive project (www.insectsalive.com), in collaboration with the staff at UF's Nanoscale Research Facility, and funded by a grant from UF's Creative Campus Initiative (to Andrea Lucky and Lisa Taylor). Thank you to the National Science Foundation for funding undergraduate research in the Taylor Lab and the University Scholars Program for funding this project.

Method



1. Select the three-dimensional model from the Taylor Lab at the Entomology and Nematology Department. Fellow researchers using microCT scanning of live spiders created the models.



2. The models are printed at the Marston Science Library. When printed by the Fusion F306 3D printers models are printed with plastic support material.



3. The printed plastic support material is removed exposing the true form of the printed spider. All spiders for the models were collected from the Gainesville area.



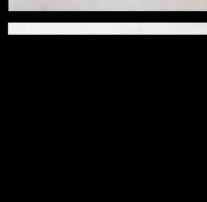
4. Most Models are printed in black and then painted with a primer coat.



5. A lighter neutral color is applied through color blocking to define the spiders patterns for the five different species created in the portfolio.



6. Live spiders in addition to enlarged photographs are studied. Then a dry-brush acrylic paint layer is applied over these areas to add local color and texture.



7. Additional layers of color, highlights, and a clear coat are added to all spider models. The same process is applied to the range of spider sizes from 3cm to 20cm.

Portfolio

Large Spider Models: these models are primarily used as teaching tools. The spiders are used to educate individuals of different ages spanning from preschool to college level. The large models illustrate the anatomy, coloration, and defining characteristics of different species of spider.



Medium Spider Models: These models will be used as outreach subjects to educate and inspire appreciation for jumping spiders. The models will be placed in international geocaches starting in regions that the Taylor Lab conducts research including, Florida, Arizona, and Kenya. The models will include a code that leads to an educational website on the biology of jumping spiders. This will also allow researchers to observe the movement of the spider models as they are relocated.



Small Spider Models: The small life size spider models are used in spider reproduction research. Cara McDermott, my fellow undergraduate researcher, aims to figure out if spiders react to models as they would a live spider. Understanding how spiders react to models could prove useful in further understanding spider communication such as courting behavior and mate selection.

Conclusion

Academic works of art are often informed by the scientific subject matter and academic representation, but art is often created by following the rules of the discipline and the principles of design.

The intended audience for the reception of a work of academic art. For example, spider models would be interpreted differently in a museum setting compared to a gallery.

One's understanding of a subject increases when representing a biological process or organism. I have an increased understanding of the anatomy of the different spiders.

Future Work

A series of works will be created that explore experiments with how model display can further integrate scientific subject matter into the fine arts. (See the images below)

More models will be created documenting a larger range of species.



References