## **FLORIDA STATE** UNIVERSITY

### Introduction

- BioArt is a form of art that utilizes living subjects and samples as the basis for artistic works.<sup>1</sup>
- Merges the seemingly opposing disciplines of science and art.
- Provides not only new opportunities for artists, but also new opportunities and perspectives for scientists, highlighting how the fields can benefit from each other.<sup>2</sup>
- In this project, we create artistic photographs of live microscopic samples using various light microscopy techniques with the ultimate goal of creating a final image submission for the Nikon Small World Contest.
- The results of this project consist of a small collection of visually appealing images of aeolosoma captured using differential interference contrast (DIC).
- o Aeolosoma are a species of fresh-water annelid, or segmented worm.<sup>3, 4</sup>

### Methodology

- Creating the final set of images required sample selection, preparation, image capture, and post-processing.
- All images were captured using a Nikon Ni-U microscope set in DIC with 4x, 20x, and 40x objectives.
- Images were technically captured with a Nikon camera attached to the microscope and accompanying Nikon computer software.
- Final images were selected and post-processed in Photoshop.

### References

- (1) Yetisen, A. K.; Davis, J.; Coskun, A. F.; Church, G. M.; Yun, S. H. Bioart. *Trends in Biotechnology* **2015**, *33* (12), 724–734. https://doi.org/10.1016/j.tibtech.2015.09.011. (2) Frankel, E.; Temple, J.; Dikener, E.; Berkmen, M. Bridging the gap with bacterial art. *FEMS* Microbiology Letters 2023, 370. https://doi.org/10.1093/femsle/fnad025. (3) Fok, S. K.-W.; Chen, C.-P.; Tseng, T.-L.; Chiang,
- Y.-H.; Chen, J.-H. Caspase dependent apoptosis is required for anterior regeneration in Aeolosoma viride and its related gene expressions are regulated by the Wnt signaling pathway. Scientific Reports **2020**, *10* (1). https://doi.org/10.1038/s41598-020-64008-1.
- (4) Annelida. Oxford Reference; Hine, R., Ed.; 2019.

- Results • This projected ultimately resulted in four images of aeolosoma captured using DIC. • A range of objectives were chosen to best capture different parts of the aeolosoma sample.
- Each image is visually pleasing in its own regard, achieving artistic value through color, contrast, abstraction, or dynamism.

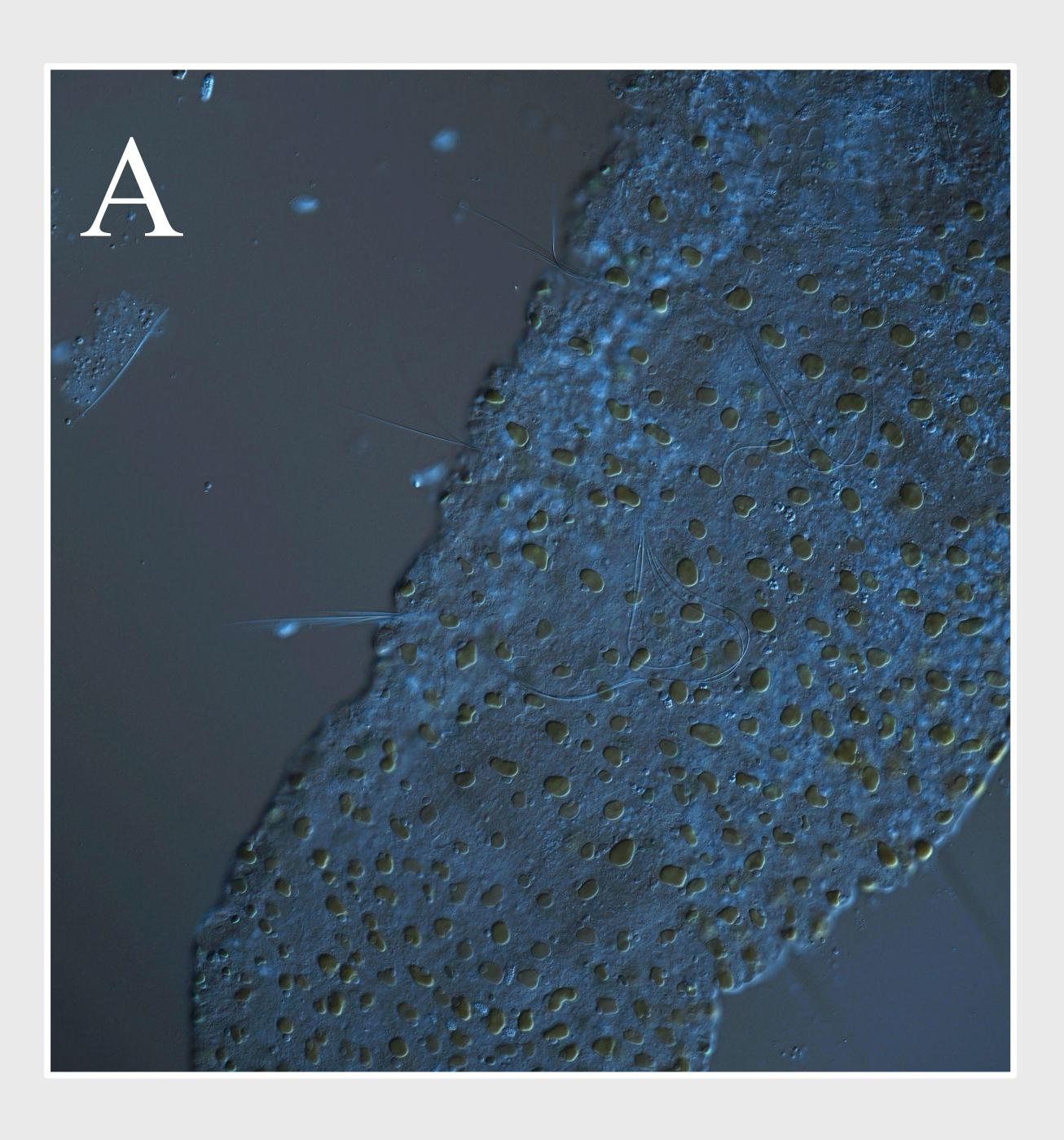
- Strengths of this project include interdisciplinarity and numerous opportunities for creativity and artistic expression.
- Limitations include difficulty obtaining clear images and limited working time due to use of living samples.
- Continued work on this project will involve selecting a final image to submit to the Nikon Small World Contest based on image quality and artistic value and completing any final edits necessary before submission.
- Working with live samples presents an opportunity for artistic microscopic videography along with photography in this project. In addition, the Nikon Small World contest provides a category for microscopy videography that future researchers could create submissions for.

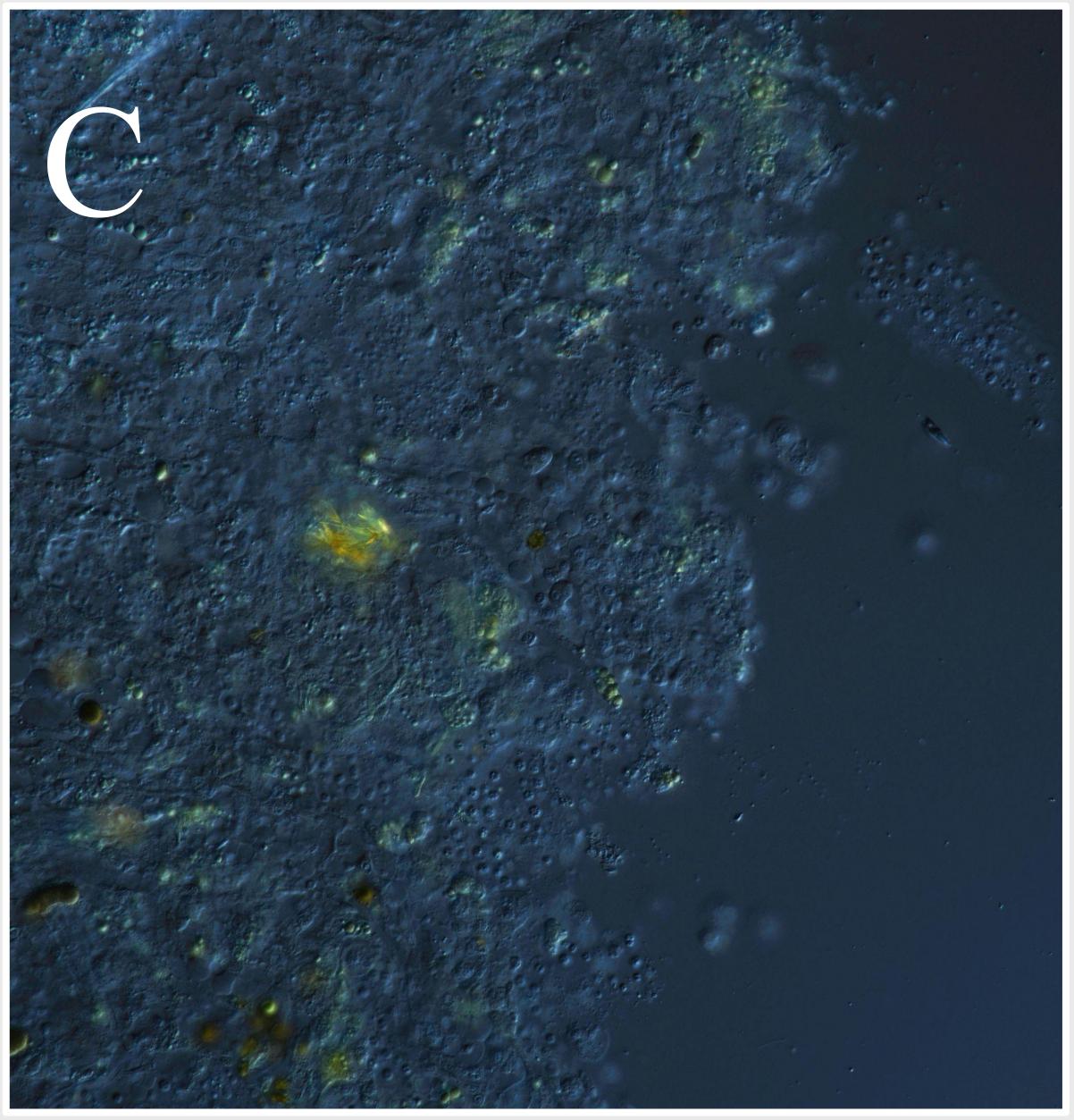
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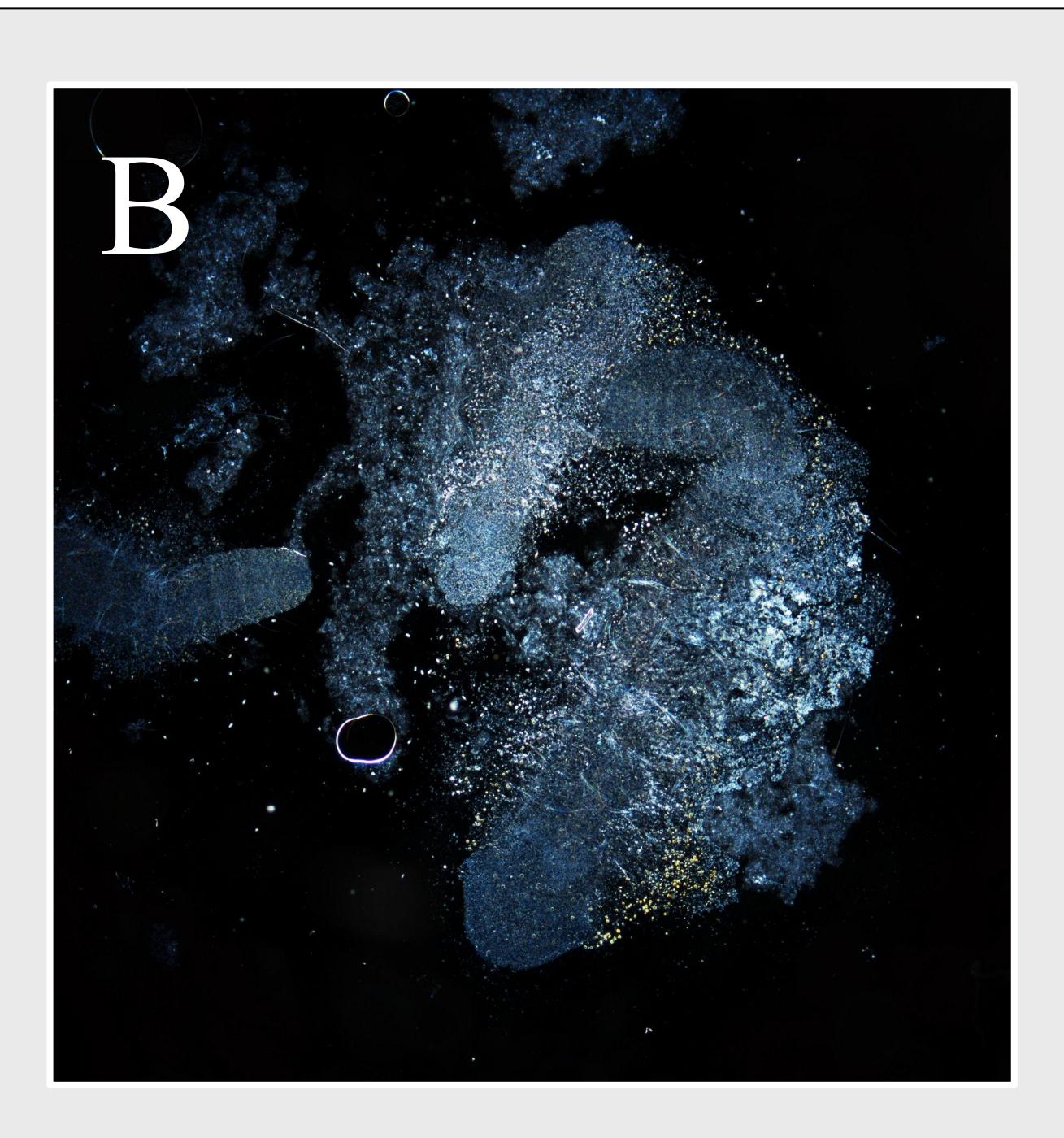


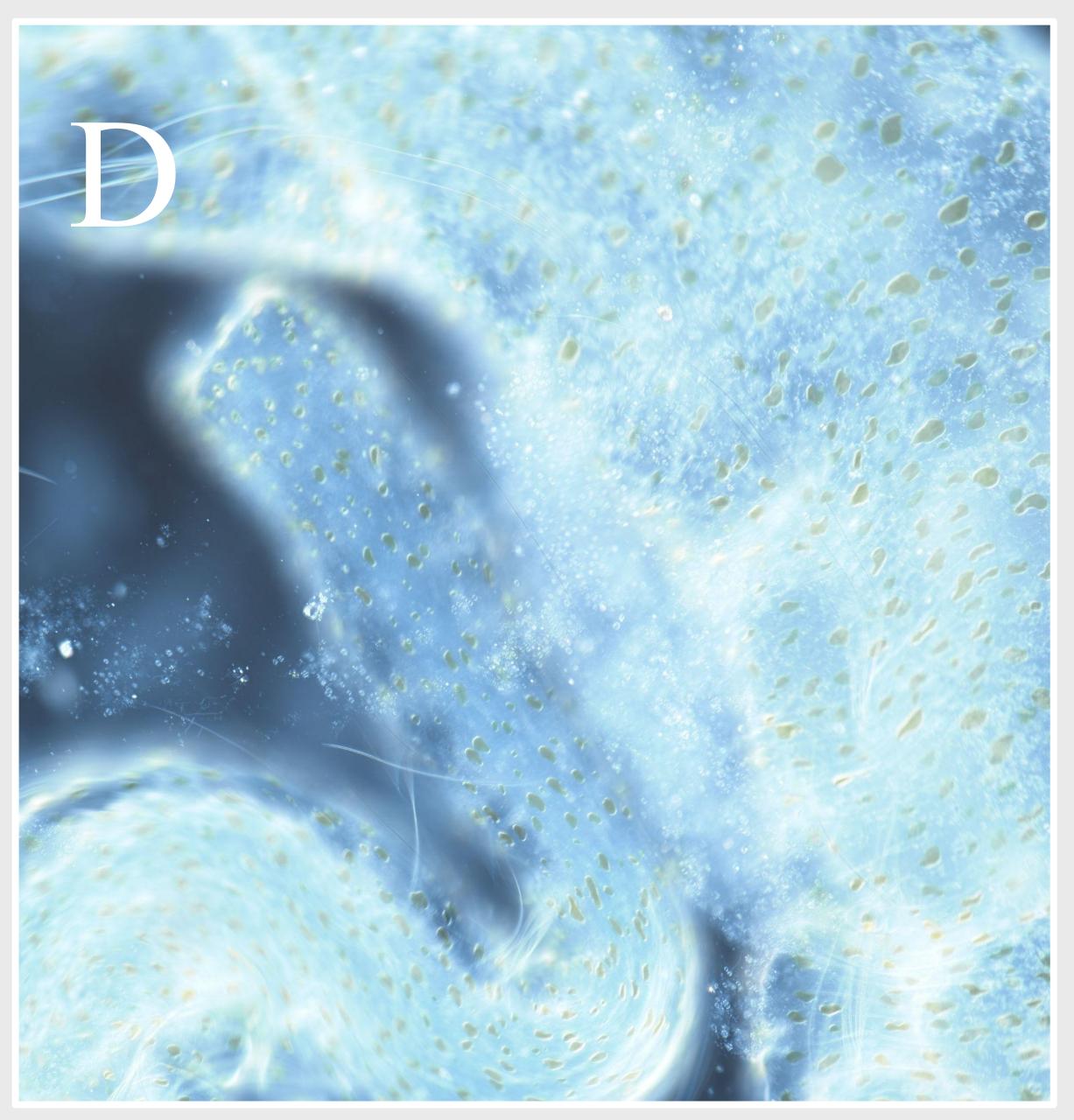
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### Conclusions









# **UNDERGRADUATE RESEARCH OPPORTUNITY PROGRAM** UNDERGRADUATE RESEARCH & ACADEMIC ENGAGEMENT