INFLUENCE OF PERCEIVED GEOMETRY IN ZEBRAFISH GROUP BEHAVIOR PATTERNS. Eric Zhu, Pieter Derksen, Sebastian Streichan, Department of Physics, University of California, Santa Barbara

The group behavior of animals is complex, with varying structures among different species and environments. One example is zebrafish: Their two main grouping methods are shoaling, swimming in proximity, and schooling, moving cohesively in one direction.

Zebrafish are model organisms in scientific research because they have short gestation periods, develop quickly, and are easy to work with. By using zebrafish, we want to expand on existing active matter research, with fish as an active particle that sensing their environment. Both physical geometry and how they perceive geometry are important for the behavior of the fish, making them a special active particle.

We tested the impact of the density of fish and the shape and size of the tank, which both contribute to how the fish swim together. We conclude that the geometry of the confinement important for the behavior and how the fish process sensory information are equally important.