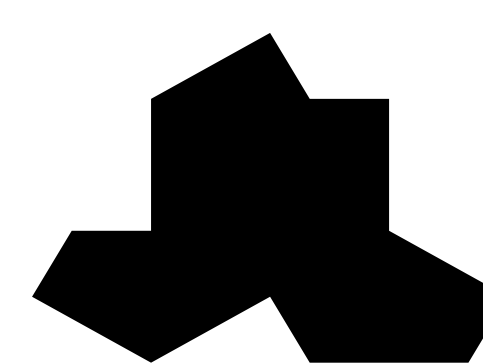
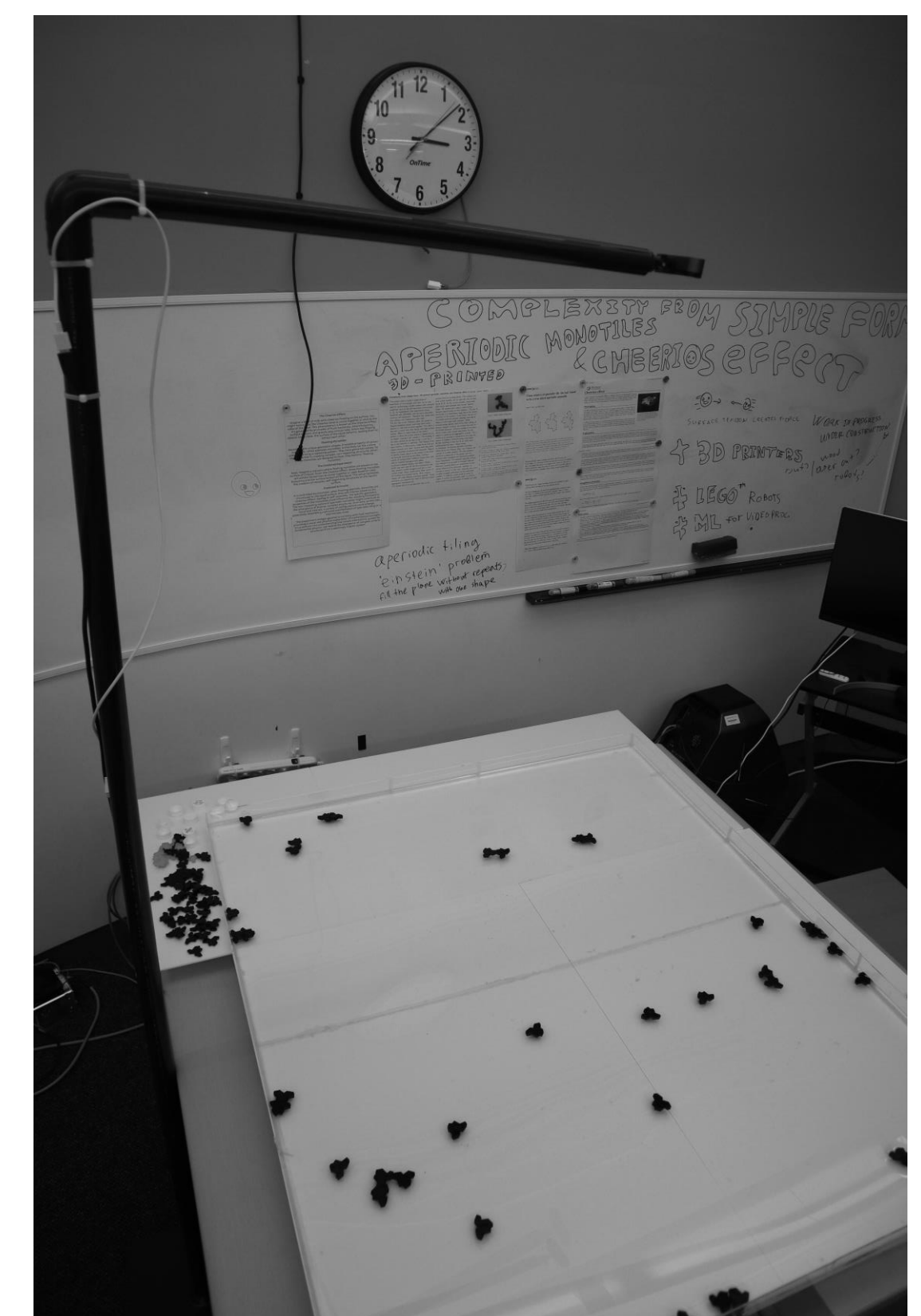


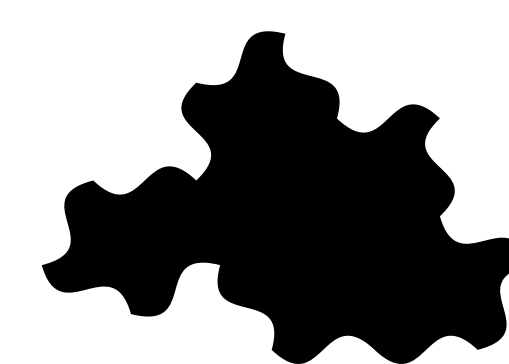
FloaTiles: puzzles self-organize into interesting structures

Complexity from Simple Form: 3D-Printed Aperiodic Monotiles and Cheerios Effect *Georgii Karelin (OIST ECSU)*

Cheerios Effect: Floating objects on a liquid surface come together due to surface tension and buoyancy. This phenomenon can be harnessed to control and manipulate the assembly of specific structures. The light reflection in the given figures effectively demonstrates the deformation of the water surface around the floating objects. This deformation results in the force that pulls objects together, allowing for controlled aggregation of structures.



Hat



Spectre



Aperiodic Tiling: covering a whole plane without a repeating pattern using a single tile type. Recent 2023 discovery of the “**hat**” and “**spectre**” offers a unique geometric shape that can be incorporated into the experiment. Tiles can be created using 3D printing or laser cutting. They were introduced to a water surface to see how they aggregate based on the **Cheerios Effect**.

The “FloaTiles” project combines two ideas to demonstrate how individual tiles interact through the Cheerios Effect to produce emergent behavior.

By adding tiles and stationary elements (engines) that have specific effects like attraction and repulsion the system can produce more complex patterns. Patterns can affect the level of perturbation in the real time by feedback loop of the video from camera.



Please visit
web-page for
the complete
description of
the project
and VIDEO

<https://karegeo.github.io/floafiles/>