Mathematics of Origami
Origami as frequency-selective surface
Miura-ori

Negative Poisson’s ratio
Unfolds with only two points of contact
Flat foldable
Geometry of folding is well-understood
Simulating the Miura-ori

Ansoft HFSS to perform electronic analysis
Simulating the Miura-ori

Ansoft HFSS to perform electronic analysis
Simulating the Miura-ori

Ansoft HFSS to perform electronic analysis
Surface Structures
Parameterization of Surface Structures

\[ G(t) = C + F\downarrow H(t)u + F\downarrow V(t)n \times u \]
What next?

- More complex structures
- More complex sensing arrays
- Refine model kinematics
In the classroom...

Foldable Circuitry, Design and Construction
Activity #1: Build-A-Box
In the classroom...

Activity #2: Design Your Own