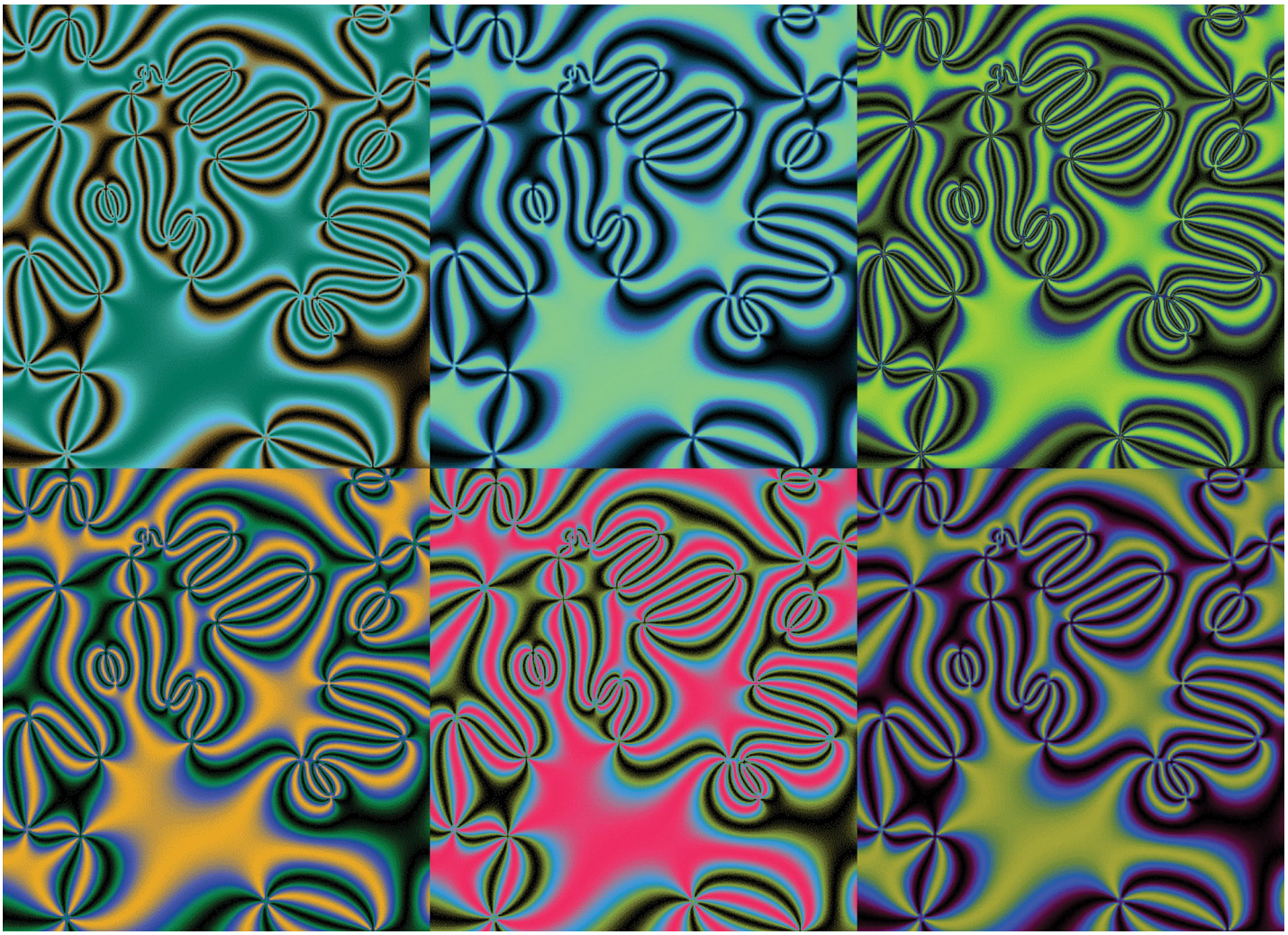

Highlighting research from Soft Materials Research Center at University of Colorado, Boulder from the group of Prof. Noel A. Clark.

End-to-end machine learning for experimental physics: using simulated data to train a neural network for object detection in video microscopy

Despite the utility of machine learning, the cost of assembling large sets of training data acts as a barrier for widespread adoption. Our work shows that effective models for object detection can be trained on data sets generated from computer simulations of the relevant dynamics, paired with deliberate application of image perturbations to increase visual variation. For topological defects in freely-suspended liquid crystals, our model detects defects at levels comparable to humans.

Image credit: Joia Reeder

As featured in:

See Eric N. Minor *et al.*, *Soft Matter*, 2020, **16**, 1751.

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