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Shelley B. Kandola*, 206 Church Street, 127 Vincent Hall, University of Minnesota,
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In this talk, I will present my recently-completed dissertation on the topological complexity (TC) of spaces of digital images. In particular, I focus on digital images that are represented by Jordan curves with the Khalimsky topology. I expand upon this by interpreting the set of digital Jordan curves as a finite topological space. Computing the TC of this space determines the minimal number of motion planning rules required to continuously morph one image into another, and determining the associated motion planners provides the specific algorithms for doing so. The main result is that this space of digital Jordan curves is path-connected, hence, its TC is finite. To do this, I prove some results about distance functions in finite T_0 spaces that will pave the way for an analog of Błaszczyk and Carrasquel's efficient TC that can be extended to finite T_0 spaces. I also demonstrate some examples of sizes of digital plane for which the TC of the space of digital Jordan curves in that plane is known. I end by proving that my choice of topology on the space of digital Jordan curves and the underlying digital plane is the only true topology for which its TC is finite. (Received July 05, 2019)