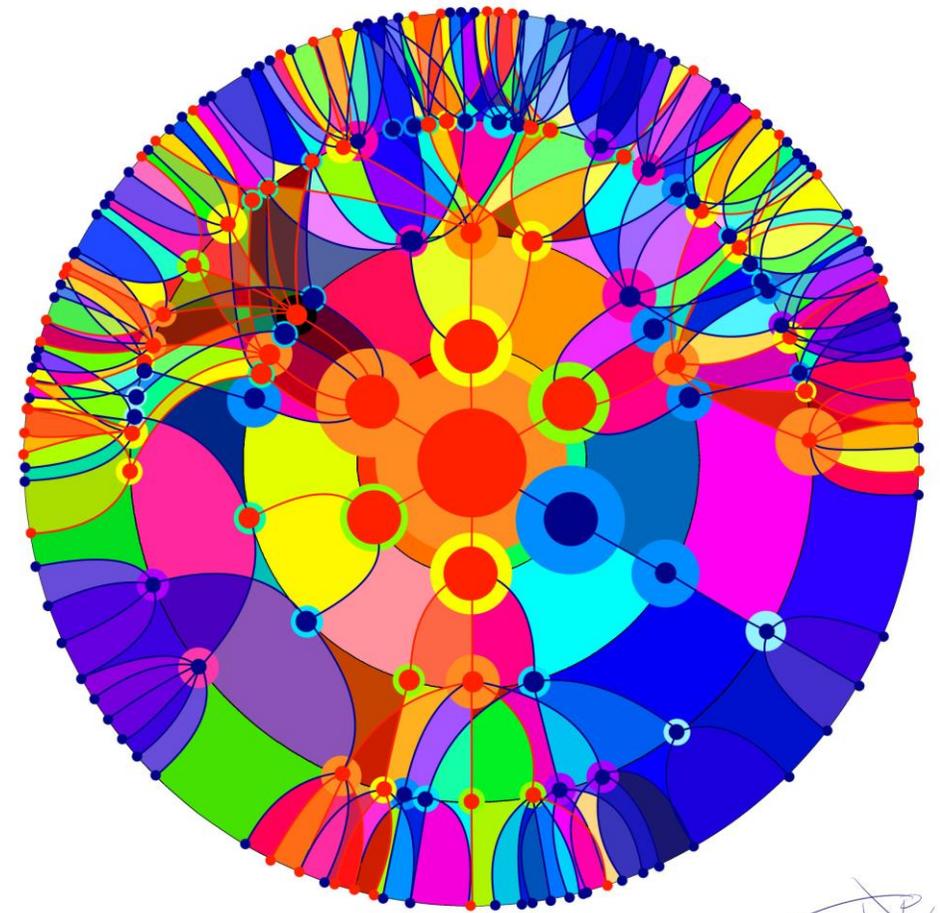


Markov Mandala I

This image represents the spread of COVID-19 where each point represents a person and the choices they make which either pivot them toward higher risk of spreading the virus (red) or not (black). This image concretizes my verbal attempts to describe risk in order to persuade others to take preventative measures quickly and early in the pandemic so that vulnerable people under my care would not suffer. The series of lines and dots are simple Markov chains on a polar coordinate plane. A Markov chain is a way of expressing sequences where each event has many possible outcomes, and each outcome affects the next step in the sequence. Here the chains radiate from the center of the circle to show relationships of contact and infection between people. In this model each person has a random chance to meet between 1 and 6 people in the next generation, each of whom has a 50% chance of becoming infected if the previous person was.



Markov Mandala II

This image is my attempt to use color to bring some emotional subtlety and humanity into the previous Markov chain diagram. Modeling necessarily reduces all the complexity of people down into data points; recovering and describing what is lost requires the expressive evocation of art. The colors in this image represent risk and emotion. Danger is connoted with warmer colors, while cooler colors indicate increasing safety. Warm colors can also be seen as showing agitation, anger, or fear while also indicating social warmth and togetherness as our risk of infection cruelly increases. Cool colors show various grades of safety or tranquility, but also perhaps isolation and sadness. In the course of modeling to create this image, one of the people in the upper left quadrant died from their infection; the emotional impact of this event shades all the connections that people had with this person in this little mandala community.