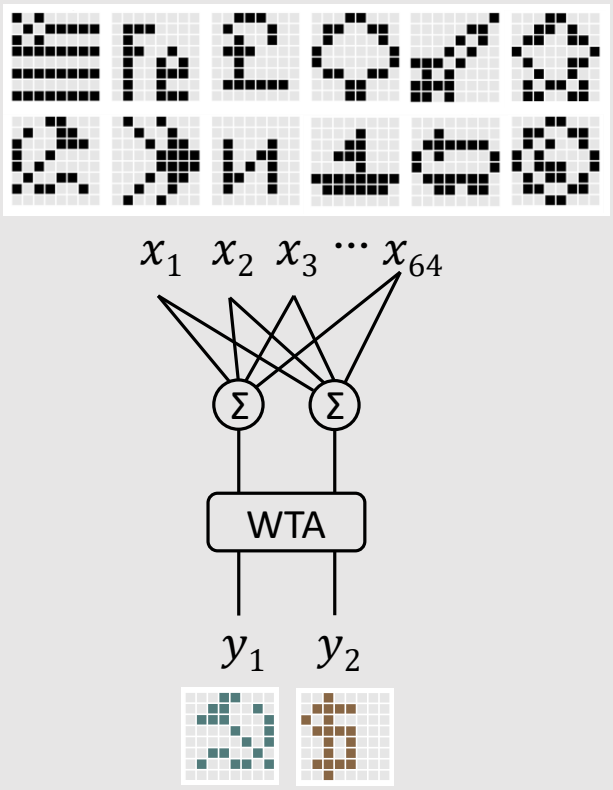
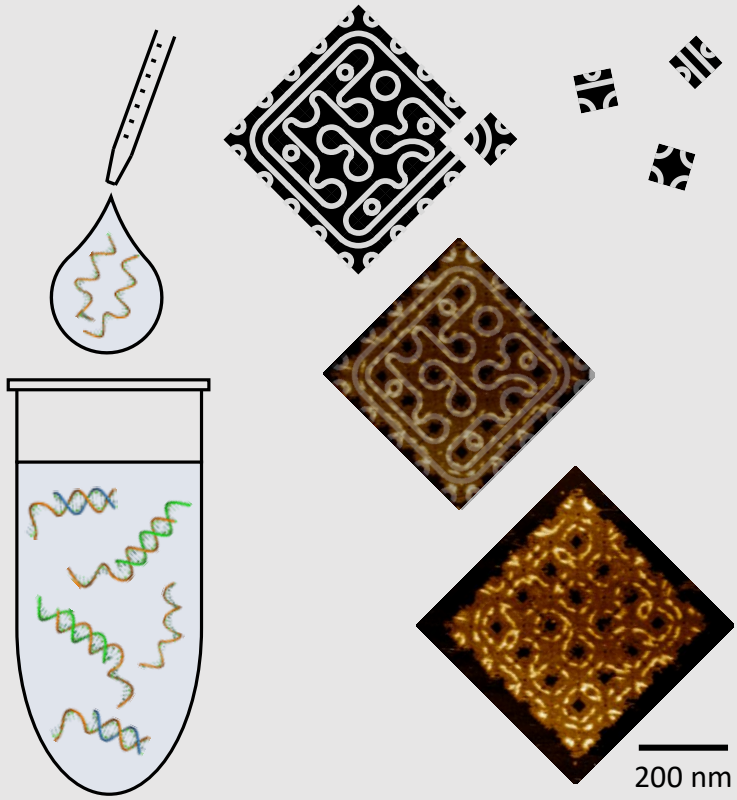
BE/CS 196a Design and construction of programmable molecular systems

Winter 2021, 1-4 pm Tuesdays and Thursdays, max enrollment: 16

Instructor: Lulu Qian; TAs: Kevin Cherry, Namita Sarraf, Sam Davidson

Are you a computer scientist who is interested in the behaviors of biomolecules but have never seen a pipettor before? Conversely, are you a bioengineer or biologist who is interested in computer science principles but have never developed a program before? This course will give you an opportunity to construct molecular systems with the functions that you design, of complexity comparable to the most sophisticated biomolecular neural networks and nanoscale structures ever created. You will be exposed to a molecular engineering research frontier that is interdisciplinary and unconventional. You will find out that the process of designing molecular devices can be as systematic as designing computer programs. In debugging a molecular program, you will be a detective in a world of molecules, and you will need to think logically and creatively.





This winter, the following changes will be made for online learning:

- Wet-lab experiments will be performed by the TAs; you will design the experiments, computationally simulate the results, observe key procedures, and analyze the data.
- You will be engaged in interactive sessions in virtual reality where we work together to perform thought experiments and play with 3D models of molecules.
- The homework assignments will be reduced to 50% the usual amount to help you cope with reduced productivity working at home.