During the Summer 2011 semester I worked on two research projects: modeling vertebra formation in mice and computationally generating social networks graphs. As part of the vertebra project, I took a trip to University of Michigan, Ann Arbor to give an invited talk at the Center for Computational Medicine and Bioinformatics.

The goal of my vertebra formation project was to build a mathematical model to understand the nature of the mechanism governing the formation of vertebra in mammals during the early stages of embryo development. The model we built gives a concise representation of complexities of the molecular interactions governing the temporal development of vertebra; and provides insight on what makes the formation process robust.

My second research project was studying how the social networks form. How does one create a large uniform random sample of networks that resemble social networks on a list of key properties? My research investigated different computational algorithms for answering that question. As a part of this research I have generated and analyzed 62 million social network graphs so far, many terabytes of data.