Modeling Project:

The ability for the body to transport oxygen to each cell is dependent on biological organization scaling from the molecular (hemoglobin, diffusion of molecular oxygen…) up to blood vessels and the pumping action of the heart. Modeling this system would to understand its constraints when underload would be an interesting challenge. A model of this system could be useful to help us understand what is happening under highly anaerobic condition such as free diving or under endurance tasks like running a marathon which requires constant delivery of oxygen.

The current plan for the project, is to begin thinking about what features of this system we could potentially model, and figure out what is aspects are most feasible/interesting to model within the time/ability we have and also decided what aspects can be simplified.

Realistic goal:

A working model of one subsystem of the cardiovascular system.

Potential subsystems:

* Oxygen exchange at the lung, mixing of fresh oxygen with residual oxygen and how that effects the transport of oxygen into the body.
* Transport of oxygen from blood across membrane to muscles (from hemoglobin to myoglobin) could include transport of CO2 aswell.
* Feedback loop between blood acidity (from increased C02) and the breathing rate (controlled by the pH of blood).