Initialize cells in simulation space

Apply forces on nodes

Solve equations of motion using Box2D

Apply periodic boundary conditions

Quantify/visualize cell behavior

Internal steps in physics engine

- Accumulate forces on nodes
- Integrate equations of motion
  \[
  \mathbf{v}_{t+1} = \frac{\mathbf{F}}{m} \delta t + \mathbf{v}_t
  \]
  \[
  \omega_{t+1} = \frac{\tau}{I} \delta t + \omega_t
  \]
  \[
  \mathbf{x}_{t+1} = \mathbf{v}\delta t + \mathbf{x}_t
  \]
- Correct for constraints on nodes
- Check for colliding nodes
- Apply collision resolving forces
- Correct \((x, v, \omega)\) for collision forces

Propulsive forces \((F_p)\)
Elastic bending forces \((F_b)\)
Viscous drag \((F_d)\)
Slime reorientation forces \((F_h)\)
Re-orientation forces \((F_r)\)
Node restoration forces \((F_a)\)
Cell adhesion forces \((F_{adh})\)