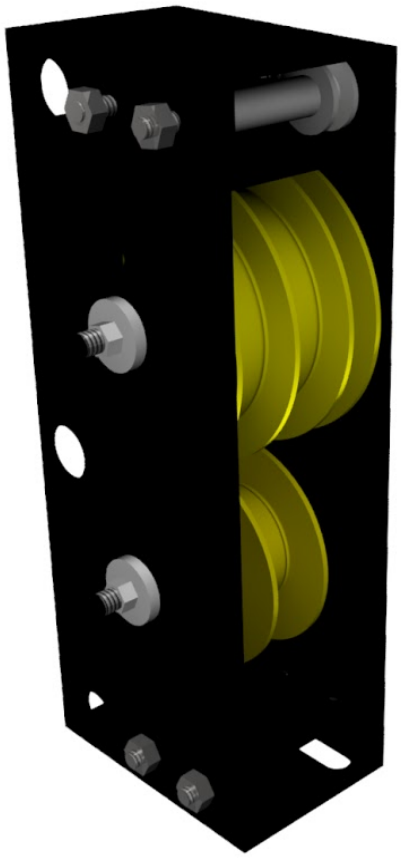
**Arthur Zhang** **Spring 2018**

# Constant Torque Spring Motor



I designed and machined a torque spring motor, which converts potential energy in constant torque springs to pulling force. I 3D printed custom ABS spools to wind two constant torque springs on. By adjusting the radius of the spool that the counterbalancing cable winds on, I can tune the motor to provide the exact amount of force produced. In 2018, I used this assembly to counterbalance a lift elevator on my team's FIRST robot, which allowed us to rapidly move the entire 15 lb lift elevator with only one 775 pro motor.