Carleton University Crash Dummy
MAAE 4907 I

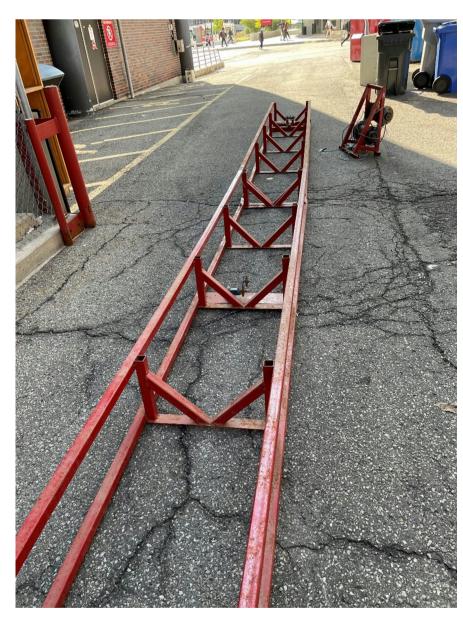**Department of Mechanical and Aerospace Engineering**

Project Overview

- Create a dummy and launch mechanism to simulate a vehicle – cyclist collision
- Collect data on collision dynamics
- CUCD is an electro-mechanical project that offers many different opportunities for you to gain electrical and/or mechanical experiences
- Collaboration with Ottawa Police Collision Investigation Unit
- Conduct crash test in spring

Crash Test Dummy Team

- Design a crash test dummy that will be used to simulate a vehicle – cyclist collision
- Perform interim analysis and testing to ensure the Crash Test Dummy can withstand impact forces without any structural failures
- Chance to gain experience creating components and making engineering drawings using a CAD software
- Chance to 3D print and machine numerous dummy parts and assemble the crash test dummy

Launch and Sensing Team

- Responsible for launching the bicycle with the Dummy on it using a cart that rolls along a track as well as recording important information during the crash test using sensors and microcontrollers
- The cart is accelerated using a motor and uses brakes to come to a stop, propelling the dummy and the bicycle
- Chance to gain experience on CAD software, microcontrollers, sensors, and programming
- Chance to design and build different 3D printed and/or machined metal parts

Autonomous Launch System Team

- Design a new, autonomous launch cart to launch the bicycle and the dummy
- Contains many different systems: motor control, integration, steering, line tracking, braking, safety, and power
- Chance to work on an interdisciplinary project, get hands-on experience with various technologies and solve complex problems
- Chance to design and execute simulations that mimic actual accident scenarios, enhancing your understanding of control dynamics

20km/h

20km/h

4m

Autonomous Launch Vehicle