



# Carleton University Sumo Challenge

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## **Disclaimer**

It is your responsibility to read and understand this document on a regular basis because we may update it from time to time.

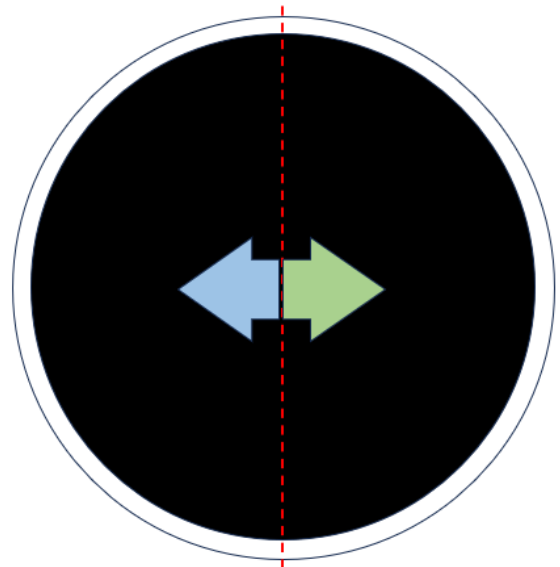
## **Carleton University Sumo Challenge**

The Carleton University Sumo Challenge is a competitive sport where two autonomous robots go head-to-head in a competition to try to push or flip their opponent out of the ring. The first robot to touch the table outside the arena loses the bout.



## Challenge Rules

1. All robots must be built and programmed to the specifications outlined in our [Lego Competition Rules](#). Unless exceptions are listed in the rules below, any robots not adhering to these specifications will be disqualified for the match and can rejoin once the robot meets the specified requirements.
2. A designated team member is the only one allowed within the ring area to communicate with judges and help set up for the match. This team member is responsible for ensuring the program selected on the robot is the one that they wish to use for the match. **Teams will NOT be allowed to change programs between bouts.**
3. Your competition day rank will be worth 70% of your final score. Judges will also [interview](#) your team (30% of the final score).
4. Robots are placed by the team captains back-to-back at the centre of the ring, across from their opponent. The judge will start the robots.
5. At the start of a bout, the designated team member will set their program, bow to their opponent, and then move away from the robots. The judge for that bout will then say, "Three, *trois*, two, *deux*, one, *un*, Go!" before activating both robots to start the bout.
6. Once the bout has started, robots **must** wait 3 seconds before moving. Teams that do not wait 3 seconds will **lose the current bout and the remainder of the match. The other team wins by default.**
7. After waiting for 3 seconds as described in rule #6, your robot's **first movement** must be away from its opponent at 180° from the other robot, your robot must go back to the white border without contacting the other team's robot. Your Robot must stay on your side of the Sumo Ring until it touches the white border. Your Robot must continue until it reaches the white border. Your robot must rotate 180 degrees when it reaches the white



border before progressing with the bout. Not touching the white border before making contact with the other robot or not spinning 180 degrees after reaching the white border, will result in disqualification. Teams that do not follow this rule will **lose the current bout and the remainder of the match. The other team wins by default.**

8. All robots that do not move after 5 seconds of beginning a bout until the end of the bout will receive the appropriate points based on the scoring system below (e.g. if the bout ends with both robots still on the table, they will both receive 1 point).
9. During a bout, should the robots get entangled, both contestants can agree to restart the bout up to a maximum of one time per match (3 bouts).
10. Robots must not detect individuals or objects beyond the table on which the sumo ring is placed. If they do and lose the bout, it will count as a loss. However, if an individual or object is accidentally placed within the table's diameter, the bout can be restarted on request before it ends. Note that the sumo ring has a diameter of 4 feet, and the table in which it is placed on is normally 6 feet in diameter.
11. There will be 3 bouts per match. Each bout will last until a robot falls off the sumo ring or until 1 minute has passed, whichever is first. If there is no winner, the bout will be declared as a tie. Note that falling off means that any part of the robot (pieces that break off of the robot during a bout that touch the table outside the ring do not count) must touch the table outside the ring, and that hanging on the edge does not end the bout. If the robot accidentally rolls off the sumo ring and touches the ground outside the ring, that will count as a loss. The winner of a match is the robot that has the most points combined after 3 bouts.
12. For the elimination tournament portion of the competition: if the teams are tied after three bouts, there will be one more bout. If that bout is a tie and rule 11 does not apply, the robot closest to the white border of the ring loses.
13. Projectiles and striking movements are not allowed, but disabling your opponent by flipping, lifting, etc., is encouraged. **Striking movements will result in immediate disqualification of the**

**team.**

## **Judging and Scoring**

1. Judges will time and score each bout. (1 minute per bout, 3 bouts per match)
2. Teams will be awarded the following points for a bout:
  - **+2 points** for a win
  - **+1 point** for a tie
  - **0 points** for a loss
  - **Violations of rules 6 or 7 will result in a loss of the current bout and the remainder of the match for offending teams; Non-offending teams will receive 2 points for the current and remaining bouts in a match (i.e. up to 6 points).**
3. The competition will consist of a round-robin style tournament in the morning, followed by elimination playoffs in the afternoon.
4. Decisions of judges are final.

## **Carleton University Sumo Challenge Arena Description**

The arena is a circular ring 4 feet (121.92 cm) in diameter with a 2" (5.08 cm) white border along the ring's perimeter (see diagram below). The arena is about 0.75 inches (1.91 cm) thick and has a black laminate surface. Special thanks go out to Mr. Andrew Hicks and Mr. Mark Vanderkloot for making the arenas and validation boxes.

The easiest way to make a sumo ring is to tape many pieces of paper, placing it on a hard floor (i.e. not carpet), and then applying black electrical tape around. Although the colours will be reversed from the official ring, it will still help with practice while at home or school.

Please contact us at [orcinfo@ieeeottawa.ca](mailto:orcinfo@ieeeottawa.ca) if you need instructions for making a sumo ring.

## Carleton University Sumo Challenge Arena Diagram

