

# CURM 2016

## CONVENTION FOR UNCONVENTIONAL ROBOTIC MOVEMENT

**Date: April 23rd, 2016    Time: 12:00 PM - 4:00PM    Place: ETC T-Room**

CURM is an annual robotics convention held at the University of Texas at Austin by the UT Robotics and Automation Society (RAS). It is open to anyone that would like to participate and is not limited to UT students. In preparation for the convention, participants - individually or as part of a team - build robots that move unconventionally. On the event day, participants will showcase their efforts, research, and robots through presentations and small competitions.

### - Why Reinvent the Wheel?

---

The wheel is awful! Alright, perhaps that is an overstatement. The wheel is great for many things, namely rolling along flat ground, but much of the world isn't flat. Developing robots that can navigate difficult terrain is a huge challenge in the field of robotics today. Robots intended for rehabilitation, exploration, and human interaction often have to move in ways that wheels just won't allow. Coming up with novel mechanisms for locomotion can aid all of these efforts.

Also, the wheel is boring! It's exciting to see robots jump and roll and flip around. Many CURM entries are not intended to be practical at all. They're just fun to look at and fun to build. You don't have the best thing since the wheel. Just make something fun that people like to look at. Also, you don't have to have a fancy degree to participate. Anyone is welcome to participate whether you are working on your PhD. or just starting out learning about robotics.

### - What is Unconventional?

---

The purpose of this convention is to stimulate innovation in the area of unconventional robotic movement. We liberally define **robot** as a physical object that requires electronics and/or mechanics to act on the world around it. We define **unconventional movement** as locomotion that does not require direct use of actuated wheels or treads as the primary method of propulsion.

Something that moves like a tank or car do not qualify, but a robot that gallops like a horse, flies like a goose, or flops around like a suffocating whale is totally awesome. That said, if you think you have a wonderful creative idea that is in a grey area or you are otherwise not sure if it would qualify, contact

us and we will let you know.

## - The Rules

---

Participants may compete as a group or individually, and may enter any number of robots. Entries must be built primarily by the participants entering it. Participants are allowed to submit a modification to an existing design; (Ex. putting legs on a roomba) however the main movement mechanism must be their own work.

Entries must satisfy the convention standards of using “unconventional robotic movement.” The criteria for this is intentionally left vague. We’ve provided some guidelines on what is a robot and what is unconventional, but ultimately, this is at your own discretion. If you think it is unconventional, then it is!

Entries should not include explosives or dangerous chemicals and should comply with federal, state, and local laws. Pretty please. If a robot uses materials or mechanisms that might pose a danger to people or property, then it will not be allowed to participate in the convention.

If an entry is designed to move in a special environment, the participant will have to provide a means of demonstrating it in a presentation room setting. (For example, if you build a robot that moves underwater, you must provide the tank of water to demonstrate it.) If this is not feasible, participants can bring a video demonstrating their entry.

## - Competing

---

CURM isn’t meant to be very competitive, but we still hand out a few certificates to commend exceptional entries. You can use these categories as a source of inspiration or you can disregard them completely.

**Smallest** - The longest length measurement of each robot will be compared. For example a robot that is shaped like a Rubik’s cube would be considered smaller than a robot shaped like a pencil.

*If you make a nanobot, you just win automatically.*

**Heaviest** - Each robot will be weighed. The robot that is heaviest whilst still being able to move is the winner. *Go big or go... compete in one of the other categories.*

**Fastest** - Each robot will compete in a race (approximately 10m long). The robot that crosses the finish line first will win. *Yes, this means it also has to be able to move straight.*

**Long jump** - A jump is considered leaving the ground and then coming back into contact with it. The

distance between points of contact are measured. Flying robots are not allowed to compete in this category. A flying robot is considered any that is capable of maintaining or gaining altitude without touching the ground. *Stick the landing if you can.*

**Most humanoid** - This category is abstract and is left to the judges' discretion. A robot is humanoid if it looks similar to a human being or emulates some part of human anatomy or behavior. *Next stop: the uncanny valley*

**Least likely to move** - This is also at judges' discretion. This award is for the robot that will surprise everyone when it starts moving. It does have to actually be able to move forward in its intended direction to qualify. *We'll just pretend you were trying to win this one.*

**Largest number of actuators** - Only the number of actuators that contribute to the robot's movement will be counted. The robot with the largest number of actuators will win. Actuators must be functional and contribute in some way to making the robot move forward. In other words, if the actuator was disconnected, the robot would not be able to move as well. *If it looks like a spider with too many legs, you're on the right track.*

**Aesthetics** - This goes to the the robot that looks the nicest/prettiest/coolest. *Grab some sandpaper. Put some paint on it. Hide some of that duct tape.*

**Best paper** - You are not required to write a paper about your robot, but you are encouraged to! This doesn't have to be a full research paper, but this is your chance to showcase the research you did in developing your robot. *Less fun than the other categories, but more bragging rights.*

Prizes are given for the best of each category. Prizes will include a plethora of "pats-on-the-back" and involve copious amounts of recognition and adoration from all witnesses.

## - How do I participate?

---

The convention is open to everyone; however, minors should be accompanied by a parent or guardian.

**For UT students:** Members of RAS can use RAS resources to build their robot. RAS resources include the right to bug anyone in the RAS office at any time for help/advice, any unused parts, or any tools not being used. If you are not a member of RAS, you have to obtain your own material for the robot. So, *joining RAS would be beneficial to you.* (Dues are \$15, contact [ras\\_president@utlists.edu](mailto:ras_president@utlists.edu) to get registered) Also, the Longhorn Maker Studio is open to all engineering students for free.

**For non UT students:** Contact your school or university to see if there is a robotics program that you can ask for help. Various maker spaces and tech shops exist that may be able to help you. You will have to arrange transportation to get to Austin on April 23rd. Specific location details will be posted on the website ([ras.ece.utexas.edu/curm.html](http://ras.ece.utexas.edu/curm.html)) when they become available.

## - Questions?

---

For any questions, concerns, or clarifications, feel free to ask people in the RAS office (ACA 101), or contact Sid (*ras\_vice\_president [at] utlists.utexas.edu*). Whether you have an idea and no idea how to tackle it, or vice-versa, people in RAS will be happy to help.