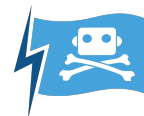


# Judge's Brief

RoboBoat 2021

# Agenda

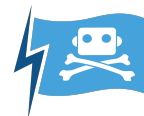
- Welcome
- RoboBoat 2021
- Instructions, Assignments & Judges' Page
- Submission Requirements
  - TDR | Skills Videos | Website
- Evaluation Forms
- Optional Scoring Rubric & Worksheet
- Important Dates
- Questions





RoboBoat is an international competition that invites participants to tackle simplified versions of challenges facing the modern maritime industry.

These challenges may include coastal surveillance, port security, oceanographic exploration, and cooperative behavior between systems operating in different domains (air and sea).



# Welcome Evaluators

**Kelly Cooper**  
-Lead Judge-  
ONR

**Michael Alban**  
NSWC  
Carderock

**Bob Ames**  
NSWC  
Carderock

**Dieter Bevens**  
NUWC Keyport

**Tom Curtin**  
U of WA APL

**Dan Deitz**  
ONR

**D. Kip  
Grantham**  
NAVSEA

**Chase  
Gruszewski**  
ONR Reservist;  
Codeable

**Kevin Hagan**  
Peraton

**Andrew Kay**  
St. George's  
School

**Colen Kennell**  
NSWC  
Carderock (ret.)

**Alex McNair**  
Raytheon/Navy  
Reserves

**Travis  
Moscicki**  
NIWC PAC

**Rick Nagle**  
NIWC PAC  
support

**Michael  
Resner**  
ONR

**Michael  
Robinson**  
NSWC Philly

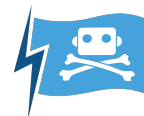
**Rob Simmons**  
Grey Hawk  
Strategic

**Tom Swean**  
ONR (ret.)

**Chris Thorton**  
Peraton

**Chris Weekley**  
Peraton

**Sophoria  
Westmoreland**  
ONR support





# RoboBoat 2021

- Physical competition cancelled
- Team submissions collected
  1. Technical Design Report (TDR)
  2. Skills Videos
  3. Website

Number of teams:  
**14 teams**



# Instructions

## Judges Page:

[www.roboboat.org/judges](http://www.roboboat.org/judges)

To follow along with the information on the next few slides, please go to the [Judges Page](#).



## Access Submissions

- Access the Judges Page and navigate to the Teams section
- TDRs, skills videos and websites linked for each team



#5 Georgia Institute of  
Technology  
Marine Robotics Group | GTMRG  
[Read More](#) ^

### Atlanta, Georgia, USA

[Website](#) | [Twitter](#) | [Instagram](#)

[Technical Design Report](#)

Skills Videos: [Hull Design](#) | [Propulsion System](#)

The Marine Robotics Group at Georgia Tech provides an environment for learning about and developing autonomous robots which operate in aquatic environments.

### Website Tip:

Click on the links in this section to access each submission.



## Evaluate Submissions

- Review submission criteria
- View your Judges assignments
- Click the applicable Evaluation Form link to submit scores

[June 16 | Scores Due](#)



## Debrief & Awards

- Judges will meet to debrief final standings and awards on **June 23 at 1800 ET**
- Judges are invited to join the virtual awards celebration on **June 27 at 1300 ET**

# Technical Design Report (TDR) Requirements

**Abstract (20 points)** - The abstract is a short summary of the main points in the paper. The paper should primarily describe the linkage between your overall competition strategy and your system architecture, design and engineering decisions.

**Competition Strategy (50 points)** - This section should discuss how the team plans on approaching the course and how the vehicle design relates to this approach. The course consists of multiple tasks with associated points for accomplishment. The only required task is passing through the start gate. Other tasks are optional and can be attempted in any order. The more tasks a vehicle is designed and engineered to accomplish, the more complex the overall vehicle system will be. The discussion should include the team's consideration of the trade-offs between system complexity and reliability. For example, teams have a limited number of working hours to prepare for the competition; this time could be spent adding additional capabilities or testing and improving the reliability of an existing capability. As system complexity grows, changes in subsystems can propagate in unmanageable ways when time is limited. Clearly, the goal of a competition is to score more points than the other teams. There are many ways to do this. Studying past competitions may be instructive. Based on history and the system engineering talents of your current team, describe your strategic vision.

**Design Creativity (40 points)** - Given your strategy for winning and your approach to managing complexity, describe the creative aspects of your system. Novelty may occur at component, subsystem, and/or integrated system levels. Describe your experience in making both architectural/design decisions and system engineering decisions. This section should not include detailed component descriptions and/or specifications not of original design. The latter should be described in Appendix A.



*TDR Requirements provided in Scoring Rubric -TDR Req tab*

# Technical Design Report (TDR) Requirements (cont'd)

**Experimental Results (40 points)** - This section should describe various tests accomplished to date and planned, both in-water and in simulation, including pre-qualifying runs. There is a strong correlation between in-water testing time and competitive performance in the arena. Given typical student time constraints, balancing creative design and system engineering with testing and experimentation can be a challenge. How did your team estimate the amount of testing required to meet your reliability goals? How did you balance the demands of design and engineering with those of testing and experimentation?

**Acknowledgements (10 points)** - Participating in the competition, as in all research projects, involves marshalling resources and support beyond the efforts of individual team members. This support can take many forms, such as technical advice, labor, equipment, facilities, and monetary contributions. Acknowledging those who have underwritten your efforts is important.

**References (10 points)** - As with any technical publication, original ideas and content not generated by the paper's authors should be properly cited. While there are many citation styles, the IEEE Conference Proceedings style should be used, found on the following link:

[www.ieee.org/conferences/publishing/templates.html](http://www.ieee.org/conferences/publishing/templates.html).

**Adherence to Formatting Guidelines (10 points)** –

- 10 page limit (excluding References and Appendices)
- 8.5 x 11 in. page size
- Margins  $\geq$  0.8 in.
- Font: Times New Roman 12pt
- Header on every page including team name and page number
- Submitted in pdf format

## Maximum of 180 points available for TDR

*TDR Requirements provided in Scoring Rubric - TDR Req tab*



# Skills Video Requirements: Technical Review (part 1)

## TECHNICAL REVIEW

**Team Introduction (5 points)** - Team members who are presenting on the video, should introduce themselves (name, academic discipline and level of education) and highlight their role and relevance to the topic. All team members are not required to make an appearance.

**Sub-System Overview (15 points)** - This section should contain a brief overview of the Autonomous Surface Vehicle (ASV) sub-system requirements of the topic selected. Topics allowed: 1) Hull Design, 2) Power Management, 3) Propulsion System, 4) Sensor Optimization.

**Competition Strategy (30 points)** - Teams should discuss their competition strategy, based on the topic they have selected. This section should also discuss rationales for design and assign a confidence rating (for successful completion) for tasks the team is planning on attempting.

**Development Testing (30 points)** – Realizing that teams may or may not have been able to test their vehicles, this section should address the efforts that teams have safely exercised to continue development of their system. Describe the types of testing efforts planned and/or implemented during your development cycle (component, software, and simulation).

- Keep in mind that each team has experienced different ripples of COVID-19.
- The intent of this category is to award points for testing efforts planned, but may also include implementation

**Skills Video Technical Review SUB-TOTAL = 80 points max**



*Video Requirements provided in **Scoring Rubric-Skills Video Req tab***



# Skills Video Requirements: Non-Technical Review (part 2)

## NON-TECHNICAL REVIEW

**Video Format (5 points)** - Video is no more than eleven (11) minutes in length and includes all required topics: Introduction, Sub-system overview, Competition strategy, Development and testing

**Visual Quality (30 points)** - Through use of visuals and text, video showcases different aspects of sub-system development in a compelling, cohesive way.

**Effective Communication (45 points)** - Strong communication skills are critical to bringing projects to life and garnering support. Whether presenting in person or through video, ideas must be delivered in a clear and convincing manner. Project supporters, such as supervisors, sponsors, or advisors must understand ideas, and be convinced of their potential. Successful teams will use the video medium to effectively communicate the sub-system they chose and the associated competition strategy and testing plan for that sub-system.

**Skills Video NON-Technical Review SUB-TOTAL = 80 points max**



## Maximum of 160 points available for Skills Videos



*Video Requirements provided in **Scoring Rubric-Video Req** tab*

# Website Requirements

**Team Information (30 points)** Teams must maintain a website that reflects their current competition team, including team information (name and team contact information), team member information (name, picture, contact information) and a list of sponsors with logos.

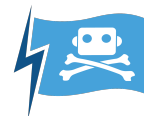
**Design Documentation (50 points)** - Teams must maintain a website documenting the development of their vehicle. Layout and contents of the website are left for the teams to develop; however, the website should include media (pictures, videos, etc.) taken during development and testing. Teams are encouraged to build an archive of previous vehicles and design reports, if applicable.

**Website Quality (50 points)** - Layout and contents of the website are left for the teams to develop. Through use of visuals and text, the website showcases the team and vehicle development in an organized and cohesive manner.

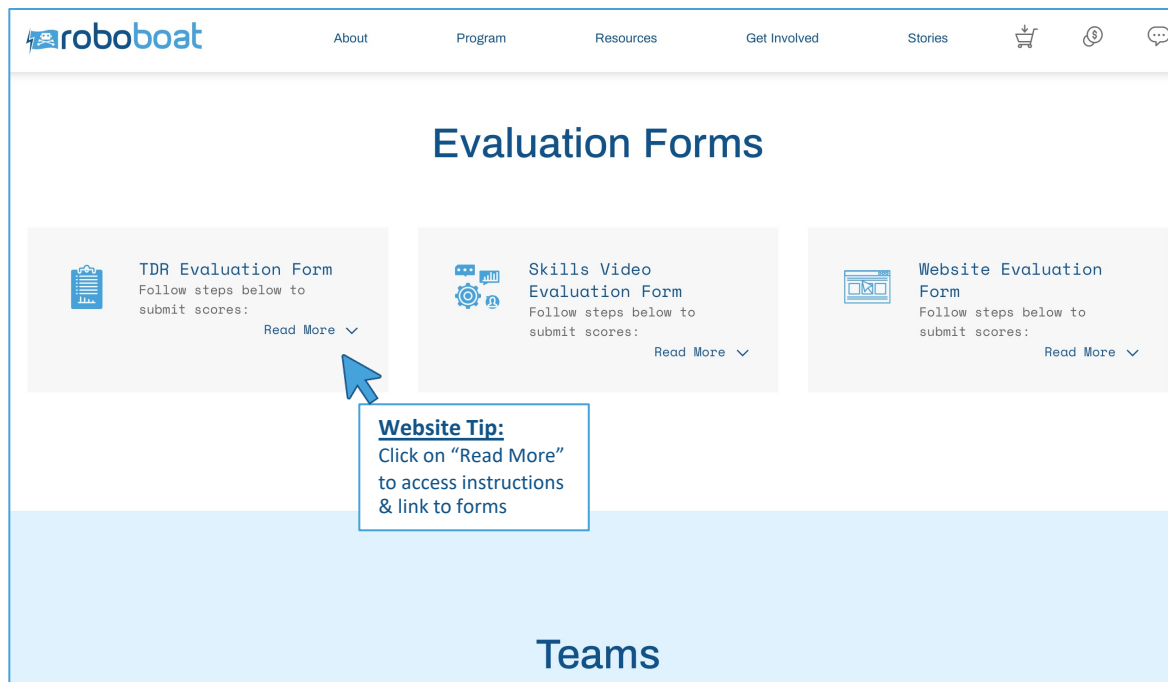


## Maximum of 130 points available for Website

*Website Requirements provided in Scoring Rubric-Website Req tab*



# Evaluation Forms



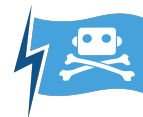
The screenshot shows the 'Evaluation Forms' section of the roboboat website. The header includes the 'roboboat' logo and navigation links: 'About', 'Program', 'Resources', 'Get Involved', 'Stories', a shopping cart icon, a dollar sign icon, and a speech bubble icon. The main heading is 'Evaluation Forms'. Below it, there are three cards:

- TDR Evaluation Form**: Includes a clipboard icon, the text 'Follow steps below to submit scores:', and a 'Read More' link with a dropdown arrow.
- Skills Video Evaluation Form**: Includes a gear and video icon, the text 'Follow steps below to submit scores:', and a 'Read More' link with a dropdown arrow.
- Website Evaluation Form**: Includes a browser icon, the text 'Follow steps below to submit scores:', and a 'Read More' link with a dropdown arrow.

A blue arrow points from the 'Read More' link of the TDR Evaluation Form to a callout box. The callout box contains the text: **Website Tip:** Click on "Read More" to access instructions & link to forms. Below the cards is a light blue section with the heading 'Teams'.







*Example taken from Evaluation Forms section of Judges Page*






# Evaluation Forms - Instructions

AboutProgramResourcesGet InvolvedStories

## Evaluation Forms




### TDR Evaluation Form

Follow steps below to submit scores:

[Read More](#)

1. Click the link for **TDR Evaluation Form**: <http://roboboast.org/judges/tdr>
2. Fill out your **name** & **team** you are evaluating
3. Add **scores** & **comments** for each component
4. Click **submit** to complete

**Repeat** steps 1-4 for each submission



### Skills Video Evaluation Form


Follow steps below to submit scores:

[Read More](#)

1. Click the link for **Skills Video Evaluation Form**: <http://roboboast.org/judges/video>
2. Fill out your **name**, **team** & **skills category\*** you are evaluating
3. Add **scores** & **comments** for each component
4. Click **submit** to complete

**Repeat** steps 1-4 for each\*\* submission.

*\*NOTE: Skills categories are Hull Design, Power Management, Propulsion System and/or Sensor Optimization*



### Website Evaluation Form

Follow steps below to submit scores:

[Read More](#)

1. Click the link for **Website Evaluation Form**: <http://roboboast.org/judges/website>
2. Fill out your **name** & **team** you are evaluating
3. Add **scores** & **comments** for each component
4. Click **submit** to complete

**Repeat** steps 1-4 for each submission



Example taken from Evaluation Forms section of Judges Page



# Evaluation Forms – Example



## **Evaluation Tip:**

Don't forget to let us know who you are!

## RoboBoat 2021 Team Website Scoresheet

### Team Website Scoresheet

Judges will review team websites for content, usability and design using the website guidelines.

What is your first and last name?

\* What RoboBoat team are you judging?

☒

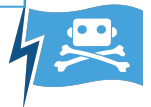
- #1 Autonomous Marine Vehicle Universitas Indonesia
- #2 Diponegoro University
- #3 Embry-Riddle Aeronautical University
- #4 Florida State University Panama City
- #5 Georgia Institute of Technology
- #6 Hagerty High School
- #7 Institut Teknologi Sepuluh Nopember
- #8 Military Technical College

## **Evaluation Tip:**

Select one team at a time to enter and submit scores

Just maintain a website that

*Example taken from Website Evaluation Form*



# Evaluation Forms – Entering Scores

## Evaluation Form Tip:

Key in the score for each evaluation section.

This example is for the Website Evaluation Form at the “Team Information” section.

**\* Team Information**  
(30 points)



## **Rubric:**

**Teams must maintain a website that reflects their current competition team, including team information (name and team contact information), team member information (name, picture, contact information) and a list of sponsors with logos.**

**Exceptional (21-30):** Team website includes team name and contact information, team member information (name, picture, contact information), and a list of sponsors with logos.

**Excellent (11-20):** Team website provides a brief introduction on the team, team members and sponsors.

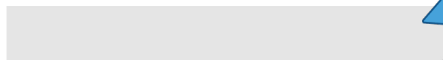
**Good (6-10):** Team website provides a mention of the team and team members.

**Fair (1-5):** Team website mentions the team.

## Evaluation Form Tip:

Rubric for each section summarizes the requirement and suggested levels for scoring.

**\* Judge Comments for**  
*Team Information*

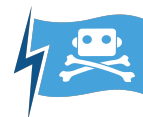


## Evaluation Form Tip:

Provide feedback/comments for the team




*Example taken from Website Evaluation Form*

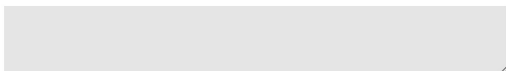


# Evaluation Forms - Submit

Any additional comments for ?



Any comments for RoboNation?



Thank you for your evaluation!


**Ready to submit?** Go ahead and click the blue button below.

**Still working?** You can navigate away from this page and all your answers should be saved to your computer.

**All evaluations are due on June 16.**

## Evaluation Form Tip:

Don't forget to click "Submit Evaluation" for each form to complete your score submission




Submit Evaluation

## Evaluation Form Tip:

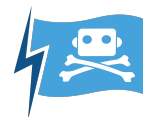
You may include any overall feedback to teams here

## Evaluation Form Tip:

Your answers will be saved, but you can not navigate back if you close the tab/window. Be sure to keep the window open if you are not ready to hit "Submit"

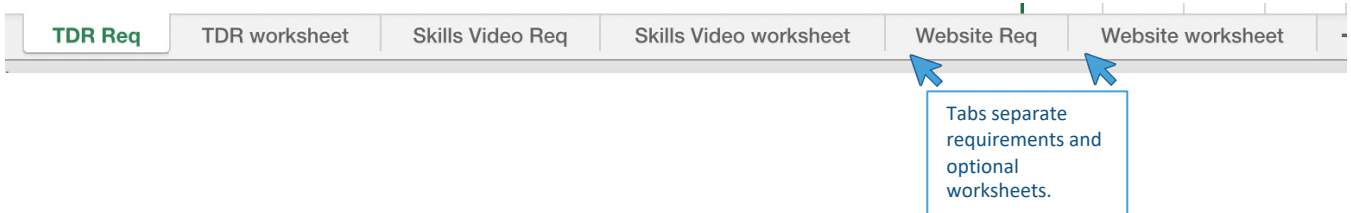


*Example taken from Website Evaluation Form*



# Optional Scoring Rubric & Worksheet

- “Req” tabs
  - Submission Requirements
- “Worksheet” tabs
  - Scoring Rubric & optional offline Worksheet



Screenshot pulled from **Submission Rubric**



# Important Dates

## Important Dates

02 June   Judges Orientation	+
02-16 June   Evaluation Period	+
16 June   Scores Due	+
23 June   Judges Reconciliation	+
27 June   Virtual Awards Party	+



### Website Tip:

Click on the plus icon to view more details for each important date!

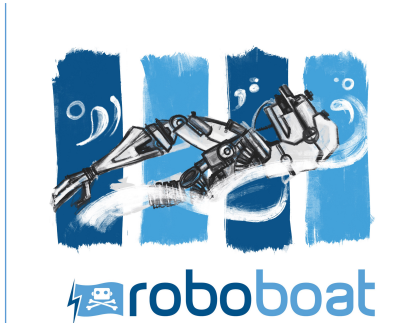


# Vote for your favorite t-shirt design *(live poll on zoom only)*

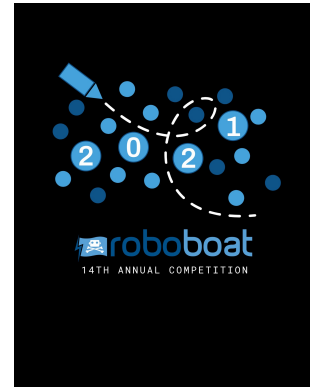
## Option 1



## Option 2



## Option 3



### Our thanks to you

The winning design will be printed on your official RoboBoat 2021 shirt. If you haven't already, please provide your preferred size and shipping address to Janelle ([jcurtis@robonation.org](mailto:jcurtis@robonation.org))



# Questions?

Any questions or uncertainty of the next step, email Janelle Curtis!

Email Janelle ↗

