

## **Interview Appendix Table of Contents**

<b>Appendix A: Overview of Interviews with Potential Participants</b>	<b>2</b>
California Polytechnic Institute Interview	2
Colorado School of Mines	4
Duke University	7
Harvard University	10
Massachusetts Institute of Technology	12
Olin College	14
Rice University	16
Texas A&M	18
University of Texas at Austin	20
University of Houston	25
University of Texas at Dallas	27
Southern Methodist University	29
Auckland University New Zealand	31
Stanford University	33
<b>Appendix B: Potential Participant Final Survey Response Summary</b>	<b>35</b>
Responses Part 1:	35
Responses Part 2:	36

## Appendix A: Overview of Interviews with Potential Participants

### California Polytechnic Institute Interview

#### Collegiate Robotics Competition Questionnaire/Interview

- University: California Polytechnic University
- Name: Jared Lehmann
- What resources are available to students on campus? (i.e makerspaces, 3D printers, CNC mills/manufacturing. etc.)
  - On campus 3D Printers
  - Machine shop available to students on weekdays
    - CNC Mills
    - CNC Lathes
    - Basic shop tools
    - Welding
- What organizations on campus compete in STEM related competitions?
  - Design Build Fly
    - 12-20 Students
    - \$5800 budget
    - Annually Competes
    - Everything fabricated on campus
  - Formula SAE
    - 50+ Students
    - \$12,800 budget
    - Annually Competes
    - Everything fabricated on campus
  - Formula Baja
    - 50+ Students
    - \$12,500 budget
    - Annually Competes
    - Everything fabricated on campus
  
- Questions on Opinion for Robotics Competitions (Feel free to state reasons for why you answered a question)
  - Ideal Frequency for the competition? (annually, every 2 years)

- Annually
      - Minimum
  - How often should the game rules change? (for example VEX game design rules change yearly, but bigger challenges like the DARPA grand challenge may keep the same rules for years)
    - Yearly
  - Are you interested in an Indoors or Outdoors Competition?
    - Indoor is preferred
  - Robot to Robot Interaction?
    - Yes
    - Make them fight lol
  - Are you interested in a multi robot competition (2 or more robot fielded by one team)?
    - Yes
  - If so, how many robots?
    - 3 robots
  - Interested in the robots being different types (i.e legged, drones, etc.)?
    - Different roles can be a personal choice
    - Yes
  - Interested in legged robots?
    - Yes
  - Interested in underwater robotics?
    - Yes
  - Interested in drones?
    - Yes
  - Interested in all-terrain robots
    - yes
  - Should there be a fully autonomous robot or just an autonomous portion of the match? (If you answered multirobot earlier answer keeping that in mind)
    - Autonomous portion
  - Should there be alliances?
    - Single robot- yes
    - Multi robot- no
  - Robot size opinion?
    - 120lb per robot max
- Other opinions you may have on a Robotics Competition:
  - Fighting robots are cool
  -

Note: Based on my interviews from competitive organizations at different schools so far the rough proposal for a competition would be a multi-day and multi-robot event. The first day would involve single robot challenges and the second day would involve a multi-robot challenge where an organization would have their robots from different challenges work together. This would also allow universities with limited resources to only focus on one single robot event if they chose to do so.

## Colorado School of Mines

### Collegiate Robotics Competition Questionnaire/Interview

- University: Colorado School of Mines
- Name: Quinn Khosla
- What resources are available to students on campus? (i.e makerspaces, 3D printers, CNC mills/manufacturing. etc.)
  - Machine Shop
    - Open everyday during the week and open to students
    - CNC Mills
    - Bandsaw, power tools
    - CNC Lathes
    - A lot of stock available to students
  - Makerspace
    - 3D printers
      - You have to pay for the filament
    -
- What organizations on campus compete in STEM related competitions?
  - Formula SAE
    - 20 Students
    - \$25,000 Annually
      - For competitions, students pay for travel, but hotel is covered
    - Competing Annually, Build a new car annually
    - Most parts are made in house
    - Suspension tabs are water jet out of house
    - Chassis
  - Formula Baja
    - 10 Students
    - \$10,000
    - Competing Annually, Build a new car annually
    - Most parts are made in house
    - Chassis
    - Senior Design project
  - Robotics Club
    - 30 Students
    - \*Insert Estimated Budget\*
    - \*Are any parts made for this competition outsourced\*
    - Hyperloop
    - NASA challenges
    -
- Questions on Opinion for Robotics Competitions (Feel free to state reasons for why you answered a question)

- Ideal Frequency for the competition? (annually, every 2 years)
  - Annually
  -
- Would you say Late May/Early June is ideal?
  - Yes
- How often should the game rules change? (for example VEX game design rules change yearly, but bigger challenges like the DARPA grand challenge may keep the same rules for years)
  - Changing it Annally can be ideal
  - If only similar to grand challenger don't change it that often
- Are you interested in an Indoors or Outdoors Competition?
  - Indoors is preferable
  - Outdoors only if it needs a lot of space
- Robot to Robot Interaction?
  - Yes
  -
- Are you interested in a multi robot competition (2 or more robot fielded by one team)?
  - Yes
- If so, how many robots?
  - 3 robots is ideal
  - Maybe 2
  - 4 is a lot
- Interested in the robots being different types (i.e legged, drones, etc.)?
  - Yes
  - Really interesting type of challenge
  - Quite different robotics challenge
- Interested in legged robots?
  - Yes
  - Very hard, would be awesome to see
- Interested in underwater robots?
  - Yes
  -
- Interested in drones?
  - Yes
- Should there be a fully autonomous robot or just an autonomous portion of the match? (If you answered multirobot earlier answer keeping that in mind)
  - Autonomous portion
  - Fully autonomous if one
- Should there be alliances?
  - Single- yes, it depends
  - Multibot- no

- Robot size opinion?
  - Bigger robots are cool
  - 120lb, FRC size is pretty good
  - Legged robots should probably be less than a 100lb
- Other opinions you may have on a Robotics Competition:
  - Needs to be really organized
    - Schedule
    - Organization
    - Clear rankings
  - Received very positively
  - Real world applications are very interesting

## Duke University

### Collegiate Robotics Competition Questionnaire/Interview

- University: Duke University
- Name: William Smith
- What resources are available to students on campus? (i.e makerspaces, 3D printers, CNC mills/manufacturing. etc.)
  - Will get back to me
- What organizations on campus compete in STEM related competitions?
  - Shell Electric Vehicle Team
    - \*Insert Estimated Student Size\*
    - \*Insert Estimated Budget\*
    - \*Does the organization compete annually, every 2 years, etc.?\*
    - \*Are any parts made for this competition outsourced\*
  - Formula SAE
    - \*Insert Estimated Student Size\*
    - \*Insert Estimated Budget\*
    - \*Does the organization compete annually, every 2 years, etc.?\*
    - \*Are any parts made for this competition outsourced\*
  - Robotics Club
    - Robosub
      - RoboNation
    - Shell Ocean Discovery X-Prize
      - Better map ocean with sonar
    - Shell Ecomarathon
      -
    -
  - Amazon Robotics
    - \*Insert Estimated Student Size\*
    - \*Insert Estimated Budget\*
    - \*Does the organization compete annually, every 2 years, etc.?\*
    - \*Are any parts made for this competition outsourced\*
  -
- Questions on Opinion for Robotics Competitions (Feel free to state reasons for why you answered a question)
  - Ideal Frequency for the competition? (annually, every 2 years)

- Annually
      - Minimum
  - How often should the game rules change? (for example VEX game design rules change yearly, but bigger challenges like the DARPA grand challenge may keep the same rules for years)
    - Yearly
  - Are you interested in an Indoors or Outdoors Competition?
    - Indoor
      -
  - Robot to Robot Interaction?
    - Yes
  - Are you interested in a multi robot competition (2 or more robot fielded by one team)?
    - Yes
  - If so, how many robots?
    - 2 lower limit, 5 is upper limit
  - Interested in the robots being different types (i.e legged, drones, etc.)?
    - Different roles can be a personal choice
    - Yes
  - Interested in legged robots?
    - Yes
  - Interested in drones?
    - Yes
  - Interested in all-terrain robots
    - yes
  - Should there be a fully autonomous robot or just an autonomous portion of the match? (If you answered multirobot earlier answer keeping that in mind)
    - Autonomous portion
  - Should there be alliances?
    - Single robot- yes
    - Multi robot- no
  - Robot size opinion?
    - If one robot, 100-200lb
    - If multiple robots, 75lb per robot max
- Other opinions you may have on a Robotics Competition:
  - Not having specific FIRST rules similar to FRC
    - Allows teams to do research
  - Rules on battery standard
  - Rules on communication standard
  - No handshakes

Note: Based on my interviews from competitive organizations at different schools so far the rough proposal for a competition would be a multi-day and multi-robot event. The first day

would involve single robot challenges and the second day would involve a multi-robot challenge where an organization would have their robots from different challenges work together. This would also allow universities with limited resources to only focus on one single robot event if they chose to do so.

-Received concept positively

## Harvard University

### Collegiate Robotics Competition Questionnaire/Interview

- University: Harvard
- Name: Humphrey Oboubi
- What resources are available to students on campus? (i.e makerspaces, 3D printers, CNC mills/manufacturing. etc.)
  - Multiple places on campus
  - Makerspaces
    - 3D Printers
  - Labs
    - Machinestops
    - Laser cutters
- What organizations on campus compete in STEM related competitions?
  - Robocup
    - \*Insert Estimated Student Size\*
    - \*Insert Estimated Budget\*
    - \*Does the organization compete annually, every 2 years, etc.?\*
    - \*Are any parts made for this competition outsourced\*
  - Insert Organization Name/Competition\*
    - \*Insert Estimated Student Size\*
    - \*Insert Estimated Budget\*
    - \*Does the organization compete annually, every 2 years, etc.?\*
    - \*Are any parts made for this competition outsourced\*
- Questions on Opinion for Robotics Competitions (Feel free to state reasons for why you answered a question)
  - Ideal Frequency for the competition? (annually, every 2 years)
    -
  - How often should the game rules change? (for example VEX game design rules change yearly, but bigger challenges like the DARPA grand challenge may keep the same rules for years)
    -
  - Are you interested in an Indoors or Outdoors Competition?
    -
  - Robot to Robot Interaction?
    -
  - Are you interested in a multi robot competition (2 or more robot fielded by one team)?
    -
  - If so, how many robots?

- - Interested in the robots being different types (i.e legged, drones, etc.)?
- - Interested in legged robots?
- - Interested in drones?
- - Should there be a fully autonomous robot or just an autonomous portion of the match? (If you answered multirobot earlier answer keeping that in mind)
- - Should there be alliances?
- - Robot size opinion?
- - Other opinions you may have on a Robotics Competition:
    -

Note: Based on my interviews from competitive organizations at different schools so far the rough proposal for a competition would be a multi-day and multi-robot event. The first day would involve single robot challenges and the second day would involve a multi-robot challenge where an organization would have their robots from different challenges work together. This would also allow universities with limited resources to only focus on one single robot event if they chose to do so.

-

## Massachusetts Institute of Technology

### Collegiate Robotics Competition Questionnaire/Interview

- University: MIT
- Name: Alex Hattori
- What resources are available to students on campus? (i.e makerspaces, 3D printers, CNC mills/manufacturing. etc.)
  - Area 51 Machine Shop
    - 3 HAAS Minimills
    - Waterjet
  - MITERS Makerspace
    - 3D Printers
    - 1 CNC Mill
    - 2 Bridgeports
    - Hand/Power Tools
- What organizations on campus compete in STEM related competitions?
  - Combat Robotics
    - 20+
    - \*Insert Estimated Budget\*
    - \*Does the organization compete annually, every 2 years, etc.?\*
    - \*Are any parts made for this competition outsourced\*
  - Power Racing Series
    - \*Insert Estimated Student Size\*
    - \*Insert Estimated Budget\*
    - \*Does the organization compete annually, every 2 years, etc.?\*
    - \*Are any parts made for this competition outsourced\*
- Questions on Opinion for Robotics Competitions (Feel free to state reasons for why you answered a question)
  - Ideal Frequency for the competition? (annually, every 2 years)
    - Annually
  - How often should the game rules change? (for example VEX game design rules change yearly, but bigger challenges like the DARPA grand challenge may keep the same rules for years)
    - Yearly
  - Are you interested in an Indoors or Outdoors Competition?
    - Indoor

- Outdoors does not seem ideal for most people
- Robot to Robot Interaction?
  - Yes
- Are you interested in a multi robot competition (2 or more robot fielded by one team)?
  - Yes
- If so, how many robots?
  - 3
- Interested in the robots being different types (i.e legged, drones, etc.)?
  - Different roles can be a personal choice
  - Yes
- Interested in legged robots?
  - Yes
- Interested in drones?
  - Yes
- Interested in all-terrain robots
  - Yes
- Should there be a fully autonomous robot or just an autonomous portion of the match? (If you answered multirobot earlier answer keeping that in mind)
  - Autonomous portion
- Should there be alliances?
  - Single robot- yes
  - Multi robot- no
- Robot size opinion?
  - If one robot, 100-200lb
  - If multiple robots, 75lb per robot max
- Other opinions you may have on a Robotics Competition:
  - Not having specific FIRST rules similar to FRC

Note: Based on my interviews from competitive organizations at different schools so far the rough proposal for a competition would be a multi-day and multi-robot event. The first day would involve single robot challenges and the second day would involve a multi-robot challenge where an organization would have their robots from different challenges work together. This would also allow universities with limited resources to only focus on one single robot event if they chose to do so.

Received Positively

## Olin College

### Collegiate Robotics Competition Questionnaire/Interview

- University: Olin College
- Name: Max Dietrich
- What resources are available to students on campus? (i.e makerspaces, 3D printers, CNC mills/manufacturing. etc.)
  - Machine Shop
    - Waterjet
    - CNC Mills
    - Welding Equipment
    - Hand and Power Tools
    -
  - Makerspace/Library
    - Hand and Power tools
    - 3D Printers
- What organizations on campus compete in STEM related competitions?
  - Formula Electric Vehicle
    - 40+ Students
    - \$30,000
    - Every year, new car
    - Nothing is outsourced in terms of fabrication
    - Travel for competition is not covered
    - 2 competitions per year
  - Human Powered Vehicle
    - \*Insert Estimated Student Size\*
    - \*Insert Estimated Budget\*
    - \*Does the organization compete annually, every 2 years, etc.?\*
    - \*Are any parts made for this competition outsourced\*
  - Insert Organization Name/Competition\*
    - 15-20 Students
    - \$10,000
    - Competes Annually
    - New Boat every 2-3 Years
- Questions on Opinion for Robotics Competitions (Feel free to state reasons for why you answered a question)
  - Ideal Frequency for the competition? (annually, every 2 years)
    - Annually

- How often should the game rules change? (for example VEX game design rules change yearly, but bigger challenges like the DARPA grand challenge may keep the same rules for years)
  - Annually
- Are you interested in an Indoors or Outdoors Competition?
  - Indoor
  - Outdoors is interesting though
- Robot to Robot Interaction?
  -
- Are you interested in a multi robot competition (2 or more robot fielded by one team)?
  -
- If so, how many robots?
  -
- Interested in the robots being different types (i.e legged, drones, etc.)?
  -
- Interested in legged robots?
  -
- Interested in drones?
  -
- Should there be a fully autonomous robot or just an autonomous portion of the match? (If you answered multirobot earlier answer keeping that in mind)
  -
- Should there be alliances?
  -
- Robot size opinion?
  -
- Other opinions you may have on a Robotics Competition:
  -

Note: Based on my interviews from competitive organizations at different schools so far the rough proposal for a competition would be a multi-day and multi-robot event. The first day would involve single robot challenges and the second day would involve a multi-robot challenge where an organization would have their robots from different challenges work together. This would also allow universities with limited resources to only focus on one single robot event if they chose to do so.

-

## Rice University

### Collegiate Robotics Competition Questionnaire/Interview

- University: Rice University
- Name: Paul Chaguine
- What resources are available to students on campus? (i.e makerspaces, 3D printers, CNC mills/manufacturing. etc.)
  - OEDK
    - Machine Shop
    - 3D Printers
    - Laser Cutter
- What organizations on campus compete in STEM related competitions?
  - VEXU
    - 10 Students
    - \$15,000 Budget
    - Competes Annually
  - Solar Vehicle Challenge
    - 15 Students
    - \*Insert Estimated Budget\*
    - \*Does the organization compete annually, every 2 years, etc.?\*
    - \*Are any parts made for this competition outsourced\*
- Questions on Opinion for Robotics Competitions (Feel free to state reasons for why you answered a question)
  - Ideal Frequency for the competition? (annually, every 2 years)
    - Annually
  - How often should the game rules change? (for example VEX game design rules change yearly, but bigger challenges like the DARPA grand challenge may keep the same rules for years)
    - Annually
  - Are you interested in an Indoors or Outdoors Competition?
    - Indoors
  - Robot to Robot Interaction?
    - Yes
  - Are you interested in a multi robot competition (2 or more robot fielded by one team)?
    - Yes
      - Sounds interesting, not many of those
  - If so, how many robots?
    - 3+
  - Interested in the robots being different types (i.e legged, drones, etc.)?
    - Yes
  - Interested in legged robots?
    - Yes

- Interested in drones?
  - Yes
- Should there be a fully autonomous robot or just an autonomous portion of the match? (If you answered multirobot earlier answer keeping that in mind)
  - Portion
- Should there be alliances?
  - No
- Robot size opinion?
  - 50lb+
- Other opinions you may have on a Robotics Competition:
  - Should be bigger than VEX

Note: Based on my interviews from competitive organizations at different schools so far the rough proposal for a competition would be a multi-day and multi-robot event. The first day would involve single robot challenges and the second day would involve a multi-robot challenge where an organization would have their robots from different challenges work together. This would also allow universities with limited resources to only focus on one single robot event if they chose to do so.

- Sounds like a cool concept!

## Texas A&M

### Collegiate Robotics Competition Questionnaire/Interview

- University: Texas A&M
- What resources are available to students on campus? (i.e makerspaces, 3D printers, CNC mills/manufacturing. etc.)
  - 3D printers
  - Some labs have machining
- What organizations on campus compete in STEM related competitions?
  - Makerspace
    - Open to All
    - Project space with 3D Printers
  - Aggie Robotics Organization
    - 20
    - No Budget
- Questions on Opinion for Robotics Competitions (Feel free to state reasons for why you answered a question- James Trapp)
  - Ideal Frequency for the competition? (annually, every 2 years)
    - Annually
  - How often should the game rules change? (for example VEX game design rules change yearly, but bigger challenges like the DARPA grand challenge may keep the same rules for years)
    - Annually
  - Are you interested in an Indoors or Outdoors Competition?
    - Indoors
  - Robot to Robot Interaction?
    - Yes
  - Are you interested in a multi robot competition (2 or more robot fielded by one team)?
    - Yes
  - If so, how many robots?
    - 3-4
  - Interested in the robots being different types (i.e legged, drones, etc.)?
    - Yes
  - Interested in legged robots?
    - No
  - Interested in drones?
    - Yes
  - Should there be a fully autonomous robot or just an autonomous portion of the match? (If you answered multirobot earlier answer keeping that in mind)
    - Portion
  - Should there be alliances?
    - No

- Robot size opinion?
  - 120lb robots
- Other opinions you may have on a Robotics Competition:
  -

Note: Based on my interviews from competitive organizations at different schools so far the rough proposal for a competition would be a multi-day and multi-robot event. The first day would involve single robot challenges and the second day would involve a multi-robot challenge where an organization would have their robots from different challenges work together. This would also allow universities with limited resources to only focus on one single robot event if they chose to do so.

-

## University of Texas at Austin

### Collegiate Robotics Competition Questionnaire/Interview

- University: UT Austin
- Name: John Cong
- What resources are available to students on campus? (i.e makerspaces, 3D printers, CNC mills/manufacturing. etc.)
  - Software:
    - Solidworks
    - Atomscar for simulations
  - Machine shop
    - Only open to ME students, but through clubs other majors can use it
      - Biggest shop
      - CNC Mills
      - Waterjet
      - Open Weekdays 8am-6pm Allowed for weekends
    - Almost every major has their own
  - Makerspace
    - 3D printers
  - Access to Garage
- What organizations on campus compete in STEM related competitions?
  - Formula SAE
    - Budget per car \$40,000
      - Solar car is a lot more expensive, \$100,000
    - New car every year
    - Compete annually
    - PCBS are outsourced
    - Electric- 40 Students
    - Solar- 20 Students
    - Combustion- 50 Students
    - Underwater UAV
  - Rocket Club/Aeronautics
    - \*Insert Estimated Student Size\*
    - \*Insert Estimated Budget\*
    - \*Does the organization compete annually, every 2 years, etc.?\*
    - \*Are any parts made for this competition outsourced\*
  - Robot Club
    - \*Insert Estimated Student Size\*
    - \*Insert Estimated Budget\*
    - \*Does the organization compete annually, every 2 years, etc.?\*
    - \*Are any parts made for this competition outsourced\*
  - VEXU
    - \*Insert Estimated Student Size\*

- \*Insert Estimated Budget\*
  - \*Does the organization compete annually, every 2 years, etc.?\*
  - \*Are any parts made for this competition outsourced\*
- 

- Questions on Opinion for Robotics Competitions (Feel free to state reasons for why you answered a question- John Cong)
  - Ideal Frequency for the competition? (annually, every 2 years)
    - Annually
      - Sense of urgency
      - Interesting to students
      - Gets to see their work in action
  - How often should the game rules change? (for example VEX game design rules change yearly, but bigger challenges like the DARPA grand challenge may keep the same rules for years)
    - Would like to see both iterating and improving and rule change every year
    - Would be nice to see rules that change every 2-3 years
  - Are you interested in an Indoors or Outdoors Competition?
    - Interested in both
  - Robot to Robot Interaction?
    - Yes
    - Always good
  - Are you interested in a multi robot competition (2 or more robot fielded by one team)?
    - Single robot
  - If so, how many robots?
    - n/a
  - Interested in the robots being different types (i.e legged, drones, etc.)?
    - n/a
  - Interested in legged robots?
    - Yes!
    - Super cool
  - Interested in underwater robots?
    - Can be difficult
  - Interested in drones?
    - Too much like an rc car
  - Should there be a fully autonomous robot or just an autonomous portion of the match? (If you answered multirobot earlier answer keeping that in mind)
    - Autonomous portion
  - Should there be alliances?
    - It depends
    - 1v1 can be good too
  - Robot size opinion?
    - Upwards of 250lbs

- Should be feasible
- Other opinions you may have on a Robotics Competition:
  - Make it look cool
  - Needs to be exciting and easy to watch
    - Needs to be a balance of 2014 Aerial Assist
  - s

Note: Based on my interviews from competitive organizations at different schools so far the rough proposal for a competition would be a multi-day and multi-robot event. The first day would involve single robot challenges and the second day would involve a multi-robot challenge where an organization would have their robots from different challenges work together. This would also allow universities with limited resources to only focus on one single robot event if they chose to do so.

- Agrees with it
- 2 robot partnerships so alliances for co-ops

- 
- Questions on Opinion for Robotics Competitions (Feel free to state reasons for why you answered a question- Dillan Mcdonald)
    - Ideal Frequency for the competition? (annually, every 2 years)
      - Annually
        - Easier for college students to be interested in
    - How often should the game rules change? (for example VEX game design rules change yearly, but bigger challenges like the DARPA grand challenge may keep the same rules for years)
      - Annually
    - Are you interested in an Indoors or Outdoors Competition?
      - Indoors
    - Robot to Robot Interaction?
      - Yes
      - Always good
    - Are you interested in a multi robot competition (2 or more robot fielded by one team)?
      - Multirobot
    - If so, how many robots?
      - 3
    - Interested in the robots being different types (i.e legged, drones, etc.)?
      - Yes
    - Interested in legged robots?
      - Yes

- Interested in underwater robots?
  - Not really, but are cool
- Interested in drones?
  - Yes, but planes are better
- Should there be a fully autonomous robot or just an autonomous portion of the match? (If you answered multirobot earlier answer keeping that in mind)
  - 1 Robot Fully Autonomous
- Should there be alliances?
  - No
- Robot size opinion?
  - 50lb Minimum
- Other opinions you may have on a Robotics Competition:
  - Needs to be exciting and easy to watch
  - Esports comes to mind

Note: Based on my interviews from competitive organizations at different schools so far the rough proposal for a competition would be a multi-day and multi-robot event. The first day would involve single robot challenges and the second day would involve a multi-robot challenge where an organization would have their robots from different challenges work together. This would also allow universities with limited resources to only focus on one single robot event if they chose to do so.

- Sounds like a cool idea!

- 
- Questions on Opinion for Robotics Competitions (Feel free to state reasons for why you answered a question- Robert Stephany)
    - Ideal Frequency for the competition? (annually, every 2 years)
      - Annually
    - How often should the game rules change? (for example VEX game design rules change yearly, but bigger challenges like the DARPA grand challenge may keep the same rules for years)
      - VEX has a good program and having the rules change every years keeps teams fairly engaged
    - Are you interested in an Indoors or Outdoors Competition?
      - Indoors
    - Robot to Robot Interaction?
      - Yes
    - Are you interested in a multi robot competition (2 or more robot fielded by one team)?

- Multiple
  - If so, how many robots?
    - 2 or more
  - Interested in the robots being different types (i.e legged, drones, etc.)?
    - Yes
  - Interested in legged robots?
    - Yes!
    - Super cool
  - Interested in underwater robots?
    - Can be difficult
  - Interested in drones?
    - Yes, but it seems difficult
  - Should there be a fully autonomous robot or just an autonomous portion of the match? (If you answered multirobot earlier answer keeping that in mind)
    - Autonomous portion
  - Should there be alliances?
    - It depends
    - 1v1 can be good too
  - Robot size opinion?
    - 120lb like FRC
- Other opinions you may have on a Robotics Competition:
  - Needs to be affordable

Note: Based on my interviews from competitive organizations at different schools so far the rough proposal for a competition would be a multi-day and multi-robot event. The first day would involve single robot challenges and the second day would involve a multi-robot challenge where an organization would have their robots from different challenges work together. This would also allow universities with limited resources to only focus on one single robot event if they chose to do so.

- Agrees with it
- 2 robot partnerships so alliances for co-ops

## University of Houston

### Collegiate Robotics Competition Questionnaire/Interview

- University: University of Houston
- Name: Nicholas Xiong
- What resources are available to students on campus? (i.e makerspaces, 3D printers, CNC mills/manufacturing. etc.)
  - Not really
  - Some 3D Printers
- What organizations on campus compete in STEM related competitions?
  - VEXU
    - 10+
    - \$2000 Budget
    - Competes Annually
- Questions on Opinion for Robotics Competitions (Feel free to state reasons for why you answered a question)
  - Ideal Frequency for the competition? (annually, every 2 years)
    - Annually
  - How often should the game rules change? (for example VEX game design rules change yearly, but bigger challenges like the DARPA grand challenge may keep the same rules for years)
    - Annually
  - Are you interested in an Indoors or Outdoors Competition?
    - Indoors for sure
  - Robot to Robot Interaction?
    - Yes
  - Are you interested in a multi robot competition (2 or more robot fielded by one team)?
    - Yes
  - If so, how many robots?
    - 2?
  - Interested in the robots being different types (i.e legged, drones, etc.)?
    - Yes
  - Interested in legged robots?
    - No that could get pretty hard
  - Interested in drones?
    - Yes
  - Should there be a fully autonomous robot or just an autonomous portion of the match? (If you answered multirobot earlier answer keeping that in mind)
    - Portion
  - Should there be alliances?
    - No
  - Robot size opinion?

- VEX Size probably is feasible
- Other opinions you may have on a Robotics Competition:
  -

## University of Texas at Dallas

### Collegiate Robotics Competition Questionnaire/Interview

- University: University of Texas at Dallas
- Name: Sairahul Adharapurapu
- What resources are available to students on campus? (i.e makerspaces, 3D printers, CNC mills/manufacturing. etc.)
  - Not really
  - Some 3D Printers
  - Laser cutter for wood
- What organizations on campus compete in STEM related competitions?
  - Makerspace
    - Projects such as electric skateboards
    - 20+ Students
  - VEXU
    - Less than 10 students
    - \$2000 Budget
    - Competes Annually
- Questions on Opinion for Robotics Competitions (Feel free to state reasons for why you answered a question)
  - Ideal Frequency for the competition? (annually, every 2 years)
    - Annually
  - How often should the game rules change? (for example VEX game design rules change yearly, but bigger challenges like the DARPA grand challenge may keep the same rules for years)
    - Annually
  - Are you interested in an Indoors or Outdoors Competition?
    - Indoors
  - Robot to Robot Interaction?
    - Yes
  - Are you interested in a multi robot competition (2 or more robot fielded by one team)?
    - Yes
  - If so, how many robots?
    - 3+
  - Interested in the robots being different types (i.e legged, drones, etc.)?
    - Yes
  - Interested in legged robots?
    - Sounds interesting
  - Interested in drones?
    - Yes
  - Should there be a fully autonomous robot or just an autonomous portion of the match? (If you answered multirobot earlier answer keeping that in mind)

- Portion
- Should there be alliances?
  - No
- Robot size opinion?
  - VEX Size probably is feasible
- Other opinions you may have on a Robotics Competition:
  -

## Southern Methodist University

### Collegiate Robotics Competition Questionnaire/Interview

- University: Southern Methodist University
- Name: Christine Gutierrez
- What resources are available to students on campus? (i.e makerspaces, 3D printers, CNC mills/manufacturing. etc.)
  - Not really
  - Some 3D Printers
- What organizations on campus compete in STEM related competitions?
  - Makerspace
    - No budget just 3D Printing
  - New Robotics Organization
    - 10+ Students
    - Recently got \$2000 grant
- Questions on Opinion for Robotics Competitions (Feel free to state reasons for why you answered a question)
  - Ideal Frequency for the competition? (annually, every 2 years)
    - Annually
  - How often should the game rules change? (for example VEX game design rules change yearly, but bigger challenges like the DARPA grand challenge may keep the same rules for years)
    - Annually
  - Are you interested in an Indoors or Outdoors Competition?
    - Indoors
  - Robot to Robot Interaction?
    - Yes
  - Are you interested in a multi robot competition (2 or more robot fielded by one team)?
    - Yes
  - If so, how many robots?
    - 3
  - Interested in the robots being different types (i.e legged, drones, etc.)?
    - Yes
  - Interested in legged robots?
    - No that could get pretty hard
  - Interested in drones?
    - Yes
  - Should there be a fully autonomous robot or just an autonomous portion of the match? (If you answered multirobot earlier answer keeping that in mind)
    - Portion
  - Should there be alliances?
    - No

- Robot size opinion?
  - VEX Size probably is feasible
- Other opinions you may have on a Robotics Competition:
  -

## Auckland University New Zealand

### Collegiate Robotics Competition Questionnaire/Interview

- University: Auckland University New Zealand
- Name: Jack Barker
- What resources are available to students on campus? (i.e makerspaces, 3D printers, CNC mills/manufacturing. etc.)
  - Makerspace
    - 3D Printing
      - PLA/ABS
    - Laser Cutter
    - Wood Router
  -
- What organizations on campus compete in STEM related competitions?
  - Formula SAE
    - 30-40
    - \$100,000
    - \*Does the organization compete annually, every 2 years, etc.?\*
    - \*Are any parts made for this competition outsourced\*
  - UAV
    - Insert Estimated Student Size\*
    - \*Insert Estimated Budget\*
    - \*Does the organization compete annually, every 2 years, etc.?\*
    - \*Are any parts made for this competition outsourced\*
    -
  - Korean Soccer Competition
    -
  - RoboCup
    -
  - VEXU
    - 30-40 Students
    - \$2000-\$3000 for parts
    - \*Does the organization compete annually, every 2 years, etc.?\*
    - \*Are any parts made for this competition outsourced\*
- Questions on Opinion for Robotics Competitions (Feel free to state reasons for why you answered a question)
  - Ideal Frequency for the competition? (annually, every 2 years)
    - Annually, best for universities
    - 2 years might suck for people

- How often should the game rules change? (for example VEX game design rules change yearly, but bigger challenges like the DARPA grand challenge may keep the same rules for years)
  - Annually
  - It would also be cool to see if you wrong
- Are you interested in an Indoors or Outdoors Competition?
  - Indoor, Less dependant
- Robot to Robot Interaction?
  - Yes
- Are you interested in a multi robot competition (2 or more robot fielded by one team)?
  - Multirobot!
- If so, how many robots?
  - 2 is probably doable to cater to smaller teams
- Interested in the robots being different types (i.e legged, drones, etc.)?
  - Different types!
- Interested in legged robots?
  - Legs would be cool, but hard
- Interested in drones?
  - Yeah hard to pull off competition
- Interested in underwater drones?
  - Yeah university would be interested
  - Not personally
- Should there be a fully autonomous robot or just an autonomous portion of the match? (If you answered multirobot earlier answer keeping that in mind)
  - Autonomous portion
- Should there be alliances?
  - Probably not for universities
- Robot size opinion?
  - No preference!
  - If it is bigger than 10 inches
- Other opinions you may have on a Robotics Competition:

## Stanford University

### Collegiate Robotics Competition Questionnaire/Interview

- University: Stanford University
- Name: Thomas Lau
- What resources are available to students on campus? (i.e makerspaces, 3D printers, CNC mills/manufacturing. etc.)
  - CNC Machines
  - 3D Printers
  - Lasercutters
- What organizations on campus compete in STEM related competitions?
  - Solar Vehicle
    - 20 Members
    - \$20,000 Annual Budget
    -
  - Formula SAE
    - 30 Members
    - \$40,000 Annual Budget
- Questions on Opinion for Robotics Competitions (Feel free to state reasons for why you answered a question)
  - Ideal Frequency for the competition? (annually, every 2 years)
    - Annually
  - How often should the game rules change? (for example VEX game design rules change yearly, but bigger challenges like the DARPA grand challenge may keep the same rules for years)
    - Annually
  - Are you interested in an Indoors or Outdoors Competition?
    - Indoors
    - Outdoors means weather dependant
  - Robot to Robot Interaction?
    - Yes
  - Are you interested in a multi robot competition (2 or more robot fielded by one team)?
    - Yes
  - If so, how many robots?
    - 3
  - Interested in the robots being different types (i.e legged, drones, etc.)?
    - Yes
  - Interested in legged robots?
    - No, too much potential difficulty
  - Interested in drones?
    - Yes

- Should there be a fully autonomous robot or just an autonomous portion of the match? (If you answered multirobot earlier answer keeping that in mind)
  - Portion
- Should there be alliances?
  - No
- Robot size opinion?
  - VEX Size probably is feasible
- Other opinions you may have on a Robotics Competition:
  -

## Appendix B: Potential Participant Final Survey Response Summary

### Responses Part 1:

Response Reference	What is your full name?	Which university do you currently attend?	What year are you?	On A Scale of 1-10 what is your interest in competing in an all-terrain robotics challenge?	On A Scale of 1-10 how likely is it that your university will compete in an all-terrain robotics challenge?	On A Scale of 1-10 what is your interest in competing in an underwater aquaculture challenge?	On A Scale of 1-10 how likely is it that your university will compete in an underwater aquaculture challenge?	On A Scale of 1-10 what is your interest in competing in an autonomous item sorting challenge?	On A Scale of 1-10 how likely is it that your university will compete in an autonomous item sorting challenge?
A	Will Smith	Duke	Freshman	5	3	8	7	6	7
B	John Cong	University of Texas at Austin	Junior	8	6	4	10	3	6
C	Sairahul Adharapurapu	University of Texas at Dallas	Junior	3	3	5	6	4	5
D	Paul Chaguine	Rice University	Masters Student	8	5	6	7	3	4
E	Zulkifl Gire	University of Houston	Senior	3	6	7	7	4	3
F	Alex Hattori	MIT	Junior	3	5	4	7	3	5
G	James Trapp	Texas A&M	Sophomore	3	3	5	6	4	5
H	Max Dietrich	Olin College	Junior	8	5	6	7	3	4
I	Jared Lehman	California Polytechnic University	Junior	3	6	7	7	4	3
J	Quinn Khosla	Colorado School of Mines	Junior	4	5	4	7	3	5

**Responses Part 2:**

Response Reference	On A Scale of 1-10 what is your interest in competing in a small-scale autonomous fire-fighting challenge?	On A Scale of 1-10 how likely is it that your university will compete in a small-scale autonomous fire-fighting challenge?	On A Scale of 1-10 what is your interest in competing in an autonomous vehicle challenge?	On A Scale of 1-10 how likely is it that your university will compete in an autonomous vehicle challenge?	On A Scale of 1-10 what is your interest in competing in a small-scale autonomous swarm robotics challenge?	On A Scale of 1-10 how likely is it that your university will compete in a small-scale autonomous swarm robotics challenge?	On A Scale of 1-10 what is your interest in competing in an indoor drone challenge?	On A Scale of 1-10 how likely is it that your university will compete in an indoor drone challenge?
A	7	8	7	3	5	7	6	7
B	4	8	6	1	5	6	8	6
C	6	7	7	4	8	7	7	7
D	5	7	4	6	6	8	7	8
E	6	7	4	3	6	7	8	7
F	5	7	3	7	4	8	7	7
G	6	7	7	4	8	7	7	7
H	5	7	4	6	6	8	7	8
I	6	7	4	3	6	7	8	7
J	5	7	3	7	4	8	7	8