

## National Center for Autonomous Technologies

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# THINK AUTONOMOUS

## Message from the **Director** **Jonathan Beck**



### 2021 MATE ROV World Competition

Springing back into action after the past year has led to an active summer, full of onsite events and bringing together the autonomous technologies community. In August, we will connect the recent NCAT virtual reality developments to the 2021 MATE ROV Competition World Event, hosted by our partners at East Tennessee State University. As students and the advanced marine tech community gather August 4-7, they will be joined by and interacting with the global community in the MATE Virtual Space developed by NCAT. Learn more at [ncatech.org/mate-virtual](http://ncatech.org/mate-virtual)



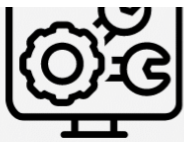
### Recent & Upcoming DRONETECH Activities

DRONETECH is expanding from the north down to the southern border, as our train-the-trainer team works with partners through the Louisiana LaSTEM Program. LaSTEM leadership will receive training to launch DRONETECH offerings throughout their region. DRONETECH also recently supported the Minnesota Aviation Career Education (ACE) camps in June and July, providing opportunities for almost 200 students to explore drone technologies. Check out our website for upcoming similar events [ncatech.org/events](http://ncatech.org/events)



### Resource Developments

Our partners at the Center for Advanced Automotive Technologies



Our partners at the Center for Advanced Automotive Technologies (CAAT) have completed the first three modules of the battery electric vehicle (BEV) and electric vehicle (EV) training as well as High Voltage safety training, which can be accessed in the CAAT Resource Library. CAAT is currently developing a three-credit course: "AUTOSAR, UDS Diagnostics, and CAN/LIN Network Fundamentals" to address courseware required for future technicians working on connected and automated vehicles. It will also contribute to larger initiatives for developing a component for a stackable credential program.



### Join us at 2021 AUVSI Xponential!

The annual Association for Unmanned Vehicle Systems International (AUVSI) Xponential conference is set for August 16-19 in Atlanta, GA. NCAT will have a booth and I will be moderating the Careers For Years: Workforce Development Panel discussion on Thursday, Aug 19. I look forward to seeing those who can attend! Enjoy the summer and recalibration as we navigate back to onsite events and activities.

## What's Your Story?



## Northland Alumni Turns Passion for Robotics, Technology and Drones into a Career



Northland alumni and current UAV Technician, Caleb Dyrud says DRONETECH program led him to choose drones as a career path. Take a look at Caleb's story to learn more about his experience entering the UAS industry.

Also - get involved with us and the autonomous technologies community by sharing your story! By sharing your experiences, accomplishments, and challenges, you are helping to inspire students, educators and industry professionals. To share yours, click [here](#).

**Read Story**

## Center Activities



### Introducing M8-R SIM - A Virtual Simulation Game for Educating Users on Operating a Remotely Operated Underwater Vehicle

Through collaboration, NCAT, along with partners – MATE Inspiration for Innovation and Clemson University Center for Workforce Development

developed a virtual-reality simulation of an underwater remotely operated vehicle (ROV) that made its debut in June!

Designed for the MATE ROV Competition, M8-R SIM focuses on ***mitigating the catastrophic impact of climate change on coral reefs by eradicating crown of thorn sea stars (COTS)***. For MATE ROV Competition teams, the simulator provides them with an opportunity to practice their piloting skills while increasing their understanding of the impact that COTS have on coral reefs.

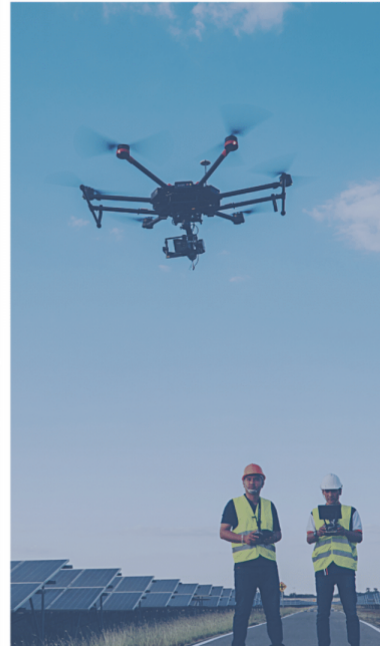
M8-R SIM is the latest example of how the Clemson University Center for Workforce Development works with partners in industry and academia to create virtual reality simulations. The Center has developed more than 140 simulations, including modules that help students learn aviation maintenance, manufacturing safety and electric vehicle safety.

M8-R SIM is a free resource available for download on PC or Mac. Visit [ncatech.org/m8r-sim](https://ncatech.org/m8r-sim) to get more details about the simulator, examples of how it can be used, or to download and practice your underwater vehicle piloting skills.

**Learn More**

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## NCAT Viewbook 2.0

To say a lot has changed in the last year is an understatement. Partnerships have evolved, (in-person) activities are being scheduled, collaborations with other centers have developed new resources, and the list goes on. NCAT has been busy - and we have new resources to share with the AT community!

Take a look at the updated version to learn more.

**Check it Out**



## 2021 Minnesota ACE Camp

In light of COVID-19, the Minnesota Aviation Career Education (ACE) Camp was transformed into a day-camp, offering three days this summer for students grades 9-12 to attend and learn more about the different career options in the aviation field.

The events were hosted at Fleming Field in the South St. Paul Airport in June and July 2021. Students were put into groups and attended sessions throughout the day - with NCAT being one of the main group sessions.

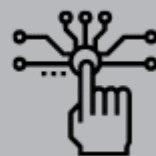
[Learn More](#)



## UAS-CTI Grant and Mentorship Opportunities

With all the innovation across autonomous technologies, program development continues to be a focus for many schools and industry partners. [Mentor Connect](#), which is funded by NSF, has partnered with NCAT and the Federal Aviation Administration UAS Collegiate Training Initiative (UAS-CTI), to provide cost-free, one-on-one assistance to faculty, administrators and grant writers to increase their capacity to submit a competitive grant proposal. In September, Elaine Craft, Principal Investigator for Mentor Connect, will present about their work and support they offer through Mentor Connect to pursue NSF grants for program development. Collaborative approaches through the FAA UAS-CTI community will contribute to the robust portfolio of [NCAT resources](#), serving the broader community.

## AT Program Launch







## North Dakota State of Science to Launch One of the Nation's First Autonomous Systems Technology Programs

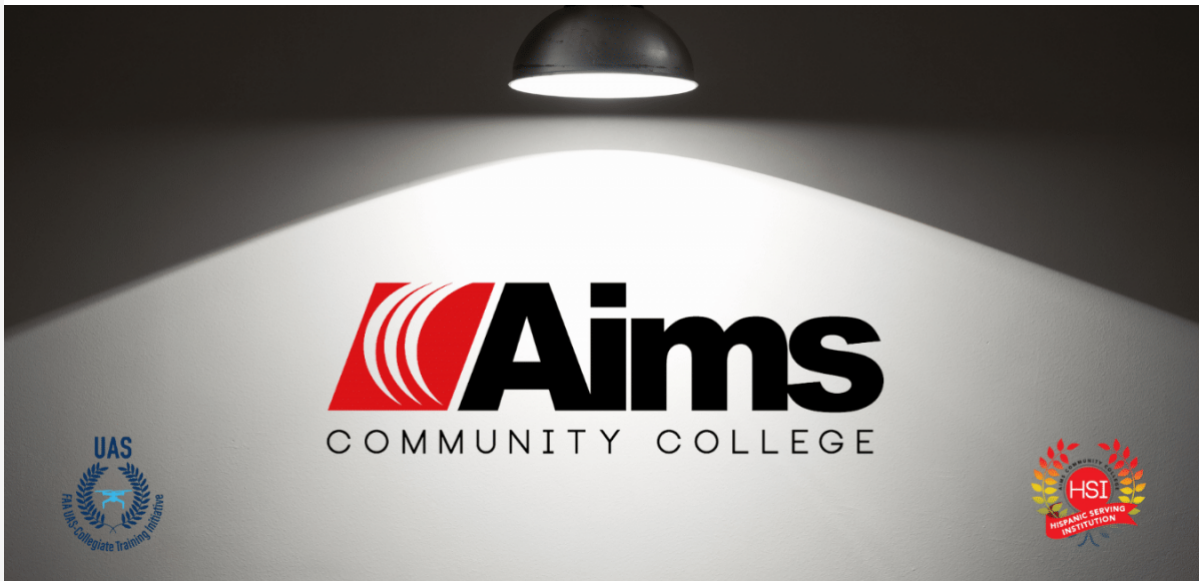
The use of ground-based autonomous technologies is expected to grow exponentially in the coming years and North Dakota is working hard to lead the nation in autonomy, with a driving force being North Dakota State College of Science (NDSCS) with their development of the Autonomous Systems Technology certificate program.

This certificate program will give students an understanding of how the basic systems work, basic set up, and diagnostics. Designed to be multi-disciplinary, the AST program doesn't focus on one specific area or industry, but rather provides students with the knowledge and skills that are transferable across different industry and career paths.

The AST program launches Fall of 2021 and NDSCS is currently accepting applications for students interested in obtaining a certificate. To learn more about how this certificate program was developed at NDSCS, visit [ncatech.org/ndscs-ast/](https://ncatech.org/ndscs-ast/).

[Learn More](#)

## UAS-CTI School Spotlight



### Aims Community College - Greenley, CO

We introduce Aims Community College, a hispanic serving institution and the first school featured in our UAS-CTI School Spotlight initiative. This initiative was created to highlight colleges across the nation who are part of UAS-CTI to show the diversity of programs and institutions offering drone courses.

#### Interesting Fact About Aims Community College

One of the most affordable 2-year colleges in the state of Colorado, Aims Community College has an average class size of 16 students and has awarded 45,000+ degrees since 1968.

#### Drone Pilot Training Program

Aims Community College offers an AVT 155 pilot training program that introduces and develops flight control and piloting techniques for common Unmanned Aircraft Systems (UAS). Students will learn and demonstrate maneuvers, procedures, and best practices for safe UAS operation on fixed

wing and rotary wing drones. ATV 155 - UAS Flight Training will develop the skills and knowledge to prepare students to take the FAA Part 107 sUAS Certificate exam. To learn more, visit [aims.edu](https://aims.edu).

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## Upcoming Events



### **MATE World Championship - Excite, Educate, Empower - Students Engineering Solutions to Global Problems**

*August 5-7, 2021 | East Tennessee University | Virtual AltspaceVR*

This year, the competition is challenging this community to tackle problems that impact the entire world. Plastics clogging our rivers, lakes, waterways, and ocean, from the surface to the bottom of the Mariana Trench. There will be both telepresence and in-person events, with in-person being held at East Tennessee University in Johnson City, Tennessee. The event will also be live streamed into the MATE Virtual World in AltspaceVR! For more information, visit [ncatech.org/mate-virtual](https://ncatech.org/mate-virtual)

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### **DRONETECH "Drone Build" Educator Workshop**

*July 26-28, 2021 | 9:00 AM - 3:00 PM | Fletcher College, Schriever, LA*

*August 4-6, 2021 | 9:00 AM - 3:00 PM | Northland, Thief River Falls MN*

This FREE workshop was developed for secondary educators, post-secondary educators, and community mentors. Participants will have the opportunity to assemble, calibrate, and experiment with the ELEV-8 v\$ Quadcopter, a small



unmanned aerial vehicle purpose-built for education. For more information or to register, click [here](#).

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### **MTTIA Summer Teachers Conference**

*August 3-5, 2021 | 10:30 AM - 5:00 PM | Central Lakes College, Brainerd MN*

The 2021 MTTIA Train-the-Trainer Summer Conference is geared towards meeting the 20 hours [NATEF](#) training. Secondary and post-secondary instructors from the state of Minnesota meet at this conference to share best practices and update their skills. This is a must conference for those who want to stay abreast of changing technology. You can also receive a CEU certificate for the MTTIA training. For more information or to register, click [here](#).

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### **AUVSI XPONENTIAL 2021**

*August 16-19, 2021 | Atlanta, GA or Virtual*

Join a community of end users, technologists, and policymakers working together to write the next chapter of autonomous innovation and assure its safe and seamless integration into everyday life. NCAT will be an exhibitor at the conference - stop by our booth and say hi (Booth #3542). For more information, visit [xponential.org](https://xponential.org).

**NCAT provides up to \$1,000 reimbursement for travel costs associated to attending professional development. To apply for reimbursement, visit**

[ncatech.org](https://ncatech.org).



## Explore STEM! @UTSA Camp

*August 2-6, 2021 | Virtual (for Texas residents only)*

The Explore STEM @UTSA is open to Texas high school students ages 14-22 with disabilities currently working with a Texas Workforce Commission counselor. The purpose of the camp is to expose students with disabilities to science, technology, engineering, and math (STEM) careers and excite them about the possibility of pursuing careers in STEM. The students will learn basic computer programming concepts, programming skills, computer vision, and machine learning. In addition to the hands-on activities, students will also hear from guest speakers currently working in STEM fields to learn about different types of STEM careers they could pursue. To learn more click [here](#).

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## Industry News





## Drone Light Shows - Connecting Art, Science, and Technology to Tell a Story

In the spirit of the month of July, and Independence Day, we wanted to share insight on the topic of Drone Light Shows and not only the technology and software that it takes to run a show, but the design and planning process to run a successful event. [Intel](#) is a leader in drone light show technology, designing hardware and software that is specific for light shows. At the intersection of art, science, and technology - drone light shows enable a new, innovative format to tell your story in the sky.

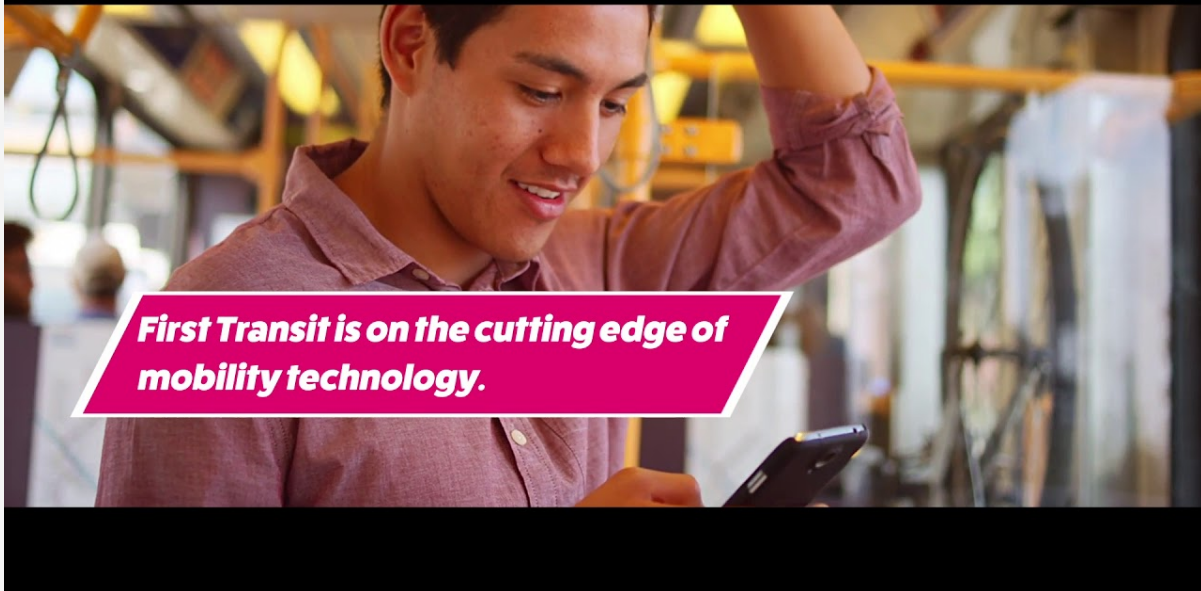
Watch the [video](#) above to learn more about Intel's drone light shows.

[Learn More](#)

## Career Opportunity







**First Transit is on the cutting edge of mobility technology.**

## Job Opening: Autonomous Vehicle Driver in Rochester, MN

[First Transit](#) is calling on applicants who want to be part of the future of transportation. Have you considered being a Driverless Vehicle Ambassador? Do you have a passion for vehicles or have vehicle maintenance experience? If so, click below to learn more.

Watch the [video](#) above to learn more about First Transit and their autonomous systems.

**Learn More**

## M8-R SIM Challenge





**GET YOUR  
GAME FACE  
ON**

**M8-R SIM  
LEADERBOARD**

|   |             |       |
|---|-------------|-------|
| 1 | indawahta   | 11000 |
| 2 | LSTeam      | 10600 |
| 3 | Robosharks  | 10000 |
| 4 | outdawahta  | 8500  |
| 5 | genericname | 8250  |

[ncatech.org/m8r-sim](http://ncatech.org/m8r-sim)

**TOP  
LEADER  
WINS**

Contest Ends 8.4.21 | 11:59 PM

**M8-R SIM**  
[ncatech.org/m8r-sim](http://ncatech.org/m8r-sim)



**oculus**

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**MATE ROV  
COMPETITION**



**NCAT**



## CONTEST INFO

**Contest ends August 4, 2021 at 11:59pm.**

**Winner will be announced on August 7, 2021 at the MATE ROV Competition Award Ceremony. We will also post winner information on social media.**

**Winner will receive Oculus Quest 2!**

**Contest is open to the public.**

**Leaderboard with high scores will be posted weekly via social media.**

**Follow us for more details!**  
@materovcompetition @autonomoustech1  
@nationalcenterforautonomoustechnologies

**M8-R SIM**  
[ncatech.org/m8r-sim](https://ncatech.org/m8r-sim)

## Leaderboard Challenge

Pilot your way to the top of the M8-R SIM leaderboard for a chance to win an Oculus Quest headset! Currently, #indawahta is the one to beat with a very impressive score of 11000 points - nice work!

Contest ends August 4 at 11:59pm with the winner announced on August 7 at the MATE ROV Competition Award Ceremony and shared via social media.

**Let's Play!**



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