

AEROCOM

JOHN D. ODEGARD SCHOOL OF AEROSPACE SCIENCES

SUMMER 2017



AERO.UND.EDU

FROM THE DEAN

As we approach our 50th anniversary in 2018, there are many new and exciting things happening at UND Aerospace. The UND Aerobatic Team continues its dominance, bringing home—for the 9th consecutive year—the IAC Collegiate National Championship. The UND Flying Team also did very well, capturing 2nd place at the annual National SAFECON competition, bringing its record of placing first or second to 28 of the last 34 years. Quite impressive indeed!

In April, the annual Family Weekend and SAMA Conference and Career Fair were a huge success with 42 aviation industry representatives promoting their companies and hiring our outstanding graduates. World-renowned aerobatic pilot Sean Tucker wowed the Family Weekend banquet crowd with a motivating speech. It was great to have Sean back at UND Aerospace.



The Odegard School is receiving special attention from not only the airline industry, but from the military as well. In April we hosted the Undersecretary of the Air Force, John Fedrigo, along with a contingent of high-ranking Pentagon personnel. The meetings focused on how collegiate aviation can collaborate more closely with the Air Force to help reduce the military's pilot shortage. Discussions also centered on greater use of the Grand Forks Air Force Base runway for UND pilot training activities. We look forward to greater collaboration with the Air Force.

In other units within the Odegard School, the Atmospheric Sciences department was awarded the UND Founder's Day Departmental Excellence in Service award for their outstanding service to the field of atmospheric sciences as well as the general public. Dr. Gretchen Mullendore received the Founder's Day award for Excellence in Teaching, Research and Service, and Professor Fred Remer received the Founder's Day Outstanding Faculty Advisor Award.

A special thank you goes out to three employees that are retiring this year. Two of our UND Chester Fritz Distinguished Professors are retiring, Dr. Santhosh Seelan, Professor of Space Studies, and Dr. Warren Jensen, Professor of Aviation. Also, Mr. Dana Siewert, long-time Director of Safety and former Director of Flight Operations is retiring. The expertise of each of these individuals will certainly be missed. All the best to each of you in your retirement years.

On a sad note, I wanted to pass on to everyone that we lost long-time Aviation Professor Dr. Charles Robertson to cancer this spring. Charlie just retired last year, but we certainly will remember his many years of dedicated work at UND Aerospace.

Finally, I want to thank all UND alumni and friends for the marvelous support the Odegard School receives for scholarships and priority needs. Through your generosity, we were able to award over \$350,000 in scholarships this past year. Thank you ever so much for your commitment to our tradition of excellence.

To celebrate our 50th anniversary we are planning signature events at the April, 2018 SAMA Conference and Career Fair/Family Weekend as well as during UND Homecoming, scheduled for September 17-22, 2018. Please mark your calendars and plan to join us as we celebrate 50 years of success!

A handwritten signature in black ink that reads "Paul D. Lindseth".

Paul Lindseth | Dean, John D. Odegard School of Aerospace Sciences

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Ready for another practice session, Cameron Jaxheimer prepares for his aerobatics demonstration at EAA AirVenture 2017.

AEROCOM

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Cover Image Cameron Jaxheimer in the EXTRA 330SC
More photos on page 19 | Cover Photo Credit **Neil Nowatzki**



SAVE THE DATES

UND HOMECOMING WEEKEND | SEPTEMBER 21&22, 2018



1968-2018



/UND AEROSPACE | aero.UND.edu/50th

ALUMNI PROFILE

162 INTERNATIONAL GRADS



Argentina, Australia, Belgium, Bolivia, Canada, China, Croatia, Estonia, Germany, Greece, Guam, Hong Kong, Iceland, India, Italy, Japan, Mexico, Nigeria, Norway, Pakistan, Papua New Guinea, Puerto Rico, Russian Federation, Saudi Arabia, Singapore, St Lucia, Sweden, Switzerland, Taiwan, Thailand, Turkey, United Kingdom, Virgin Islands

GRADS BY MAJOR

ATMOSPHERIC SCIENCES



AVIATION



COMPUTER SCIENCES



EARTH SYSTEM SCIENCE & POLICY



SPACE STUDIES



TOP 10 CITIES FOR ALUMNI

- | | |
|--------------------|-------------------------|
| 1. Grand Forks, ND | 6. Lakeville, MN |
| 2. St. Paul, MN | 7. Colorado Springs, CO |
| 3. Minneapolis, MN | 8. Rochester, MN |
| 4. Bismarck, ND | 9. Denver, CO |
| 5. Fargo, ND | 10. Prior Lake, MN |

8745
NATIONAL GRADS

AL	32	MT	125
AK	85	NE	76
AZ	221	NV	85
AR	16	NH	36
CA	390	NJ	54
CO	486	NM	30
CT	28	NY	97
DE	9	NC	101
FL	229	ND	1013
GA	163	OH	108
HI	63	OK	24
ID	72	OR	96
IL	276	PA	70
IN	55	RI	11
IA	105	SC	45
KS	63	SD	120
KY	38	TN	77
LA	16	TX	372
ME	13	UT	58
MD	78	VT	5
MA	37	VA	215
MI	110	WA	426
MN	2429	WV	12
MS	19	WI	320
MO	66	WY	33

2017 RETIREMENTS

THIS YEAR HAS SEEN THE RETIREMENT OF SOME TRUE ICONS FROM THE UND AEROSPACE FAMILY. THEIR DEDICATION AND COMMITMENT TO THE ORGANIZATION OVER MANY YEARS OF SERVICE HAVE HELPED MAKE UND AEROSPACE THE EXCITING, ENJOYABLE, ENLIGHTENING AND SAFE PLACE TO LEARN AND GROW THAT IT IS TODAY.

SANTHOSH SEELAN

PROFESSOR

18 YEARS OF SERVICE



RONALD ELGIN
INSTRUCTIONAL
DESIGNER &
SUPPORT
SPECIALIST
8 YEARS OF
SERVICE



PETE
SCHUMACHER
ASSOCIATE
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SERVICE



FRANK ARGENZIANO
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43 YEARS OF SERVICE

KATHERINE DURAY

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28 YEARS OF SERVICE



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13 YEARS OF SERVICE

MICHAEL MELBY

AIRCRAFT DISPATCHER

18 YEARS OF SERVICE



RONALD DUPUE

LEAD HELICOPTER

INSTRUCTOR

32 YEARS OF SERVICE

INSPIRATION FROM TRAGEDY

From left to right: Cristina Field (Watson) (2009 Recipient), Jim Klosterman, Jackie Foster (2008, Recipient), Karin Hensellek (2010 Recipient), Jan Klosterman



Ten years ago the unthinkable happened. A UND flight instructor and 2007 graduate, Annette Klosterman, and Adam Ostapenko, a student, were killed on the return leg of a nighttime cross country flight from St. Paul, Minn. when their plane collided with a flock of geese.

The accident sent shockwaves through the University, especially at the John D. Odegard School of Aerospace Sciences. During the search and recovery operation, Jim and Jan Klosterman flew to Grand Forks, wanting to be close by when news arrived. Unfortunately,

when the plane was found in rural Minnesota, there were no survivors.

Jim, Jan, and Annette's younger brother, Peter, were in the midst of getting ready for a memorial service, nearly 1,500 miles from home, when an idea came to them.

"The idea came to both of us, on the first or second night," Jan explained. "We need to do something to honor Annette's life here at UND."

The Annette L. Klosterman Memorial Aviation Scholarship was established

that spring. Allocations from the endowment are used to fund an academic scholarship for a female student pursuing a commercial aviation degree at UND in an amount of no less than \$2,000 per scholarship. Qualified recipients must be a sophomore, junior, or senior and exemplify the passion and determination demonstrated by Annette in her career and aspirations. An Odegard School scholarship committee selects the recipient each year.

Jackie Foster Yates was the first scholarship recipient in 2008. The impact this scholarship has had on her life goes far beyond helping to pay for her education. "The scholarship enabled me to earn my Multi-Engine Instructor (MEI) rating with a smaller amount of financial stress," Jackie explained. "Having the peace of mind that the scholarship gave helped me to channel my focus and energy into the MEI program, and ensured my success."

"Getting to know Jim and Jan has been a true blessing in my life," Jackie continued. "As the first recipient of the scholarship, it was a very special honor to be chosen. Over the years I have stayed in contact and formed a bond with Jim and Jan, and they were even able to attend my wedding last year. Having this type of relationship with the Klostermans has been wonderful."

They have always been supportive and enthusiastic towards my various flying endeavors and encouraged me to keep going. Knowing that I have them rooting for me has given me a little extra boost of encouragement and confidence that has helped me to get where I am today.”

Eleven additional scholarship recipients have been selected over the past decade, and their accomplishments, in the air and on the ground, are remarkable. These women are making their own way in a male-dominated field.

ANNETTE L. KLOSTERMAN MEMORIAL SCHOLARSHIP ENDOWMENT RECIPIENTS:

- 2008 **Jackie Foster Yates:** Pilot with Delta Air Lines
- 2009 **Cristina Field:** Currently living in Italy
- 2010 **Karin Hensellek:** Captain with Cape Air
- 2011 **Rose Kirby:** Pilot with Delta Air Lines
- 2011 **Jemma Abel:** Pilot with Compass Airlines
- 2012 **Amelia Gagnon:** Currently working for John Hopkins Physics Lab
- 2013 **Lauren Peterson:** Captain with Horizon Air
- 2014 **Tesa Hill:** Pilot with SkyWest Airlines
- 2015 **Lexi Mattfeld:** Charter pilot and flight instructor for Fargo Jet Center
- 2016 **Marika Diepenbroek:** 2017 graduate and an intern for a weather modification firm
- 2017 **Michelle Hanson:** A student at UND majoring in Commercial Aviation

Jim and Jan have been able to meet each recipient in Grand Forks every April during Family Weekend when they make a presentation during the scholarship awards.

They have gotten to know 11 of the 12 recipients very well, even receiving three wedding invitations, which they attend when possible. From their home in Spokane, W.A., they trade emails, keep track of where the women are living and working, and follow their careers.

“When they come through Spokane for any reason,” Jan said, “we try to see them, say hello, and have a meal.”

Jim added, “We make a real effort to let them know that someone has a sincere interest in what they are doing, other than their parents or immediate family. That is important to us.”

The impact that the Klostermans and this scholarship have had on over a dozen lives, in such a short time, cannot be measured simply by dollars given, or diplomas earned. Futures have been given and dreams have come true.

“Last year I was fortunate to land my dream job flying Boeing 737 jets for Delta Air Lines,” Jackie continued with excitement. “My future goals are to someday be a captain for Delta and to become involved in the training department. I also enjoy being able to offer support and encouragement to other pilots whose goals are similar to mine. With a nod toward my current employer, “keep climbing” as the sky is the limit!”

Remembering Annette and her love for life and flying is easy. Jim and Jan talk about her with great joy, pride, and love. Growing up only five miles from the

Seattle-Tacoma International Airport, Annette’s love of airplanes developed at a very young age. Jan remembers Annette’s first commercial flight when she was almost three years old, to visit Jan’s brother in Denver.

“As we were taxiing down the runway, she yelled in the biggest voice, ‘Here we go!’”

Annette graduated summa cum laude with a 4.0 GPA in Commercial Aviation with a minor in Economics in 2007. “She was a dedicated student,” said Jim, “who worked through sheer determination and endless hours of study and preparation.”

Jim added, “They were the happiest four years of Annette’s life.”

The last time Jim, Jan, and Peter saw Annette was the weekend she graduated from UND. She took the four of them up for a family flight, demonstrating one more time her passion for flying. A quote from Annette was read at her memorial service, as a reminder to all those who dream of flying.

“No matter how long your day is, or unfortunately how short your day becomes due to maintenance, weather, or being “winded” (as she liked to call it), you should always walk out with a smile because we do what we love.”

“We feel like a piece of Annette is in each one of the recipients,” said Jan. “The scholarship committee, many of whom knew Annette, chooses someone who emulates some of the qualities and attributes she had.”

“They are our ‘adopted flight daughters,’” said Jim.
—Jena Pierce

WAKE UP AND FLY RIGHT

Aviation and engineering researchers combine forces on patent-pending technology to make skies safer

UND Assistant Professor of Aviation Nick Wilson (left) and UND Assistant Professor of Electrical Engineering Kouhyar Tavakolian show off components of their patent-pending "Smartsealz" communication headset.

Nick Wilson, an assistant professor of aviation, and Kouhyar Tavakolian, assistant professor of electrical engineering, are working with colleagues, students, and private industry partner Rockwell Collins to develop "Smartsealz," a patent-pending cockpit integration technology designed to alert pilots to dangerous situations by gauging an aircraft's spatial orientation, the pilot's physiological state, or both.

In the summer of 2014, Wilson and Tavakolian were seatmates on a New Faculty and Administrators Bus Tour. This annual event takes UND faculty and administrators on a three-day bus tour from Grand Forks to western North Dakota and back again. For employees new to North Dakota, the tour is designed to get them better acquainted with the state and its people.

Wilson, a UND grad who had worked as an airline manager, pilot trainer and within aerospace business development, and Tavakolian, fresh from a post-doc stint at the University of British Columbia where he specialized in biomedical engineering advances, spent the trip getting better acquainted with each other and how they might combine their expertise into something bigger.

Their Smartsealz system uses a specially designed headset that provides pilots

with subtle "haptic" feedback in the form of vibrations in the headset ear seals when a plane's operation or the pilot's physiological state deviate from preset limits.

The system uses input from the plane's instrument panel to monitor deviations in altitude and navigation, and sensors embedded in the headset monitor a pilot's cardiac signals (and possibly

brain waves in the future) for signs of fatigue or the onset of hypoxia.

The researchers have described the alerts as a "highway rumble strip" embedded in the headset.

"We are quite ahead of the game when it comes to the navigation sensors on the plane because these are sensors that have no touch with the human



body—you can get a very accurate signal recorded,” Tavakolian said. “But when it comes to cardiac signals from the head or brain signals from this little space (on the headset), that is where things get complicated.”

Wilson said the Smartsealz sensors could tap into either a plane’s flight-management system to monitor things such as altitude, desired course and other navigation metrics, or the physiological signals of the pilot for signs of fatigue and other problems. But the technology is stronger and more useful when the navigation and physiological signals are combined, reducing the chance for false-positive alerts.

“You don’t want to have a point where the headset becomes a chore or a distraction to wear, so you want to make sure that it is, in fact, the right amount of input,” Wilson said.

Tavakolian added, “If the two things accompany each other (a pilot’s heart rate is low and brain activity is at a lower frequency at the same time that the airplane is losing altitude) then that is something in which the pilot would be alerted.”

Tavakolian said the hope is that they will have a working prototype that monitors heart signals in six to eight months.

Wilson said he became interested in looking for ways to mitigate aircraft mishaps that result from fatigue or other physiological abnormalities when he



worked in regional airline curriculum development. At the time, the FAA regulations regarding pilot fatigue and rest requirements had undergone substantial changes.

He brought that interest to his new role as an aviation professor at UND and eventually launched the collaboration with Tavakolian, an expert on biological signal processing.

The two started their combined research as part of the Alice T. Clark Program, which facilitates cross-campus collaborations. Still, Wilson and Tavakolian maintain that it was the bus tour that served as the true impetus.

“We were seat neighbors on that tour. I just happened to see Nick as one of my first contacts at UND,” Tavakolian said. “We represent two strengths that exist here at this University.”

Wilson and Tavakolian used \$10,000 from the UND Office of Corporate Engagement & Commercialization as seed money to secure additional funding to continue research that led to the Smartsealz innovation. For example, they were awarded \$100,000 in Venture grant funding from the North Dakota Department of Commerce. From the private sector, aerospace giant Rockwell

Collins donated a Virtual Avionics Procedures Trainer, valued at more than \$400,000, to, among other things, assist in the Smartsealz project.

Wilson and Tavakolian have worked closely on the project with colleagues, such as Reza Fazel-Razai, co-director of UND’s Biomedical Engineering Program, and about 10 aerospace and engineering students over the past three years.

Wilson said that the Smartsealz technology may have more uses beyond the traditional aviation industry. The innovation may one day find uses in unmanned aircraft systems, air traffic control, various military scenarios and train operations.

He added that the technology may also impact insurance rates and reduce safety costs related to aviation and other fields.

“We look at this as simply an extra layer of safety on top of existing technologies,” Wilson said. “We’re excited to keep pushing this forward, but as with anything, there’s always more work to do.”

—David Dodds

Tyler Ingham



UTM RESEARCH

The Northern Plains Unmanned Aircraft Systems Test Site performed successful small UAS flight operations in a beyond visual line of site environment to further test NASA's UAS Traffic Management (UTM) architectures and concepts in a National Campaign. The NP UAS TS paired up with five UAS Operators and performed flight operations that focused around the energy and agriculture industry. These UAS Operators included ISight RPV Services, Unmanned Aerial Institute International, SkySkopes, Botlink, and the University of North Dakota.

Photography by Jackie Lorentz



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SKY'S THE LIMIT

U.S. Sen. Heidi Heitkamp takes control of drones at UND's Robin Hall, reviews research collaborations

U.S. Sen. Heidi Hietkamp (left) operates a miniature multi-rotor UAV with Assistant Professor of Aviation and Chief UAS Pilot Amanda Brandt, and below with Associate Professor of Aviation Ben Trapnell.

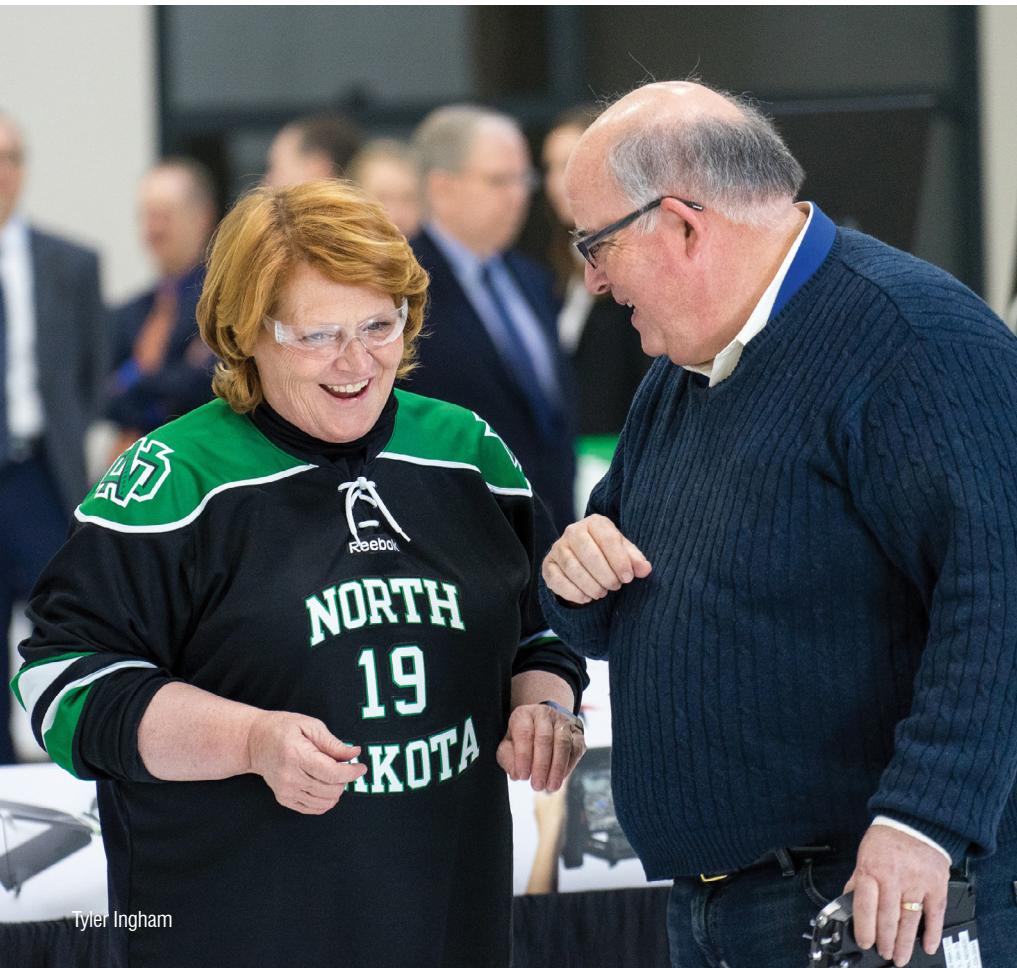


It was anything but a crash course in UAS flight operations for Sen. Heidi Heitkamp, D-N.D., when she visited UND Aerospace to get an update on their unmanned aviation efforts.

After visiting with Aerospace school officials and handling a flight simulator that mimicked one of the industry's larger UAS platforms, Heitkamp moved to the Small UAS Laboratory in Robin Hall and showed her skill in operating a couple of smaller models.

With the operating controls strapped around her, Heitkamp was a quick study and soon had a six-rotor hexacopter hovering and buzzing over the testing space. She then moved to an even tinier UAS model, a grapefruit-sized platform with the agility of a hummingbird, and proceeded to make it do mid-air flips before righting itself into a perfect hover.

The senator was a natural on the controls, demonstrating that she's becoming one of the more knowledgeable lawmakers in Congress when it comes to unmanned systems,





Tyler Ingham



Tyler Ingham

an important growth area for UND and North Dakota.

Heitkamp was impressed with UND's build-it-from-scratch-and-fly-it educational model as well as the school's emphasis on making the UAS frontier more accessible to all.

"I think it is really important that I understand the technology," Heitkamp said, "What I thought was really exciting was how aggressively UND is recruiting women into the program, especially young women in STEM education, showing how much fun it can be inventing and building a quadcopter and flying what you've actually built."

BUILD AND FLY

UND Associate Professor of Aviation Ben Trapnell explained that every student in his "Systems of Unmanned Aircraft" course must build his or her own UAS platform and successfully fly it. It forces students to be more than UAS pilots—they must also understand

systems engineering: the "nuts and bolts" and how they come together to make it work.

Trapnell says that the rigor and demands of the program make UND graduates highly sought after in the UAS industry.

"They are not engineers, but they are able to talk to engineers," Trapnell said. "These students are getting an advanced graduate school-level education in systems engineering as undergrads."

To cap off her visit, Heitkamp received a quick review of UAS research collaborations taking place at the University.

Heitkamp learned about a project in which UND is working with the FAA to improve sense-and-avoid capabilities, which would allow UAS to be operated more safely in the national airspace system. A similar but separate research effort has UND integrating and improving beyond visual line of sight (BVLOS) command-and-control

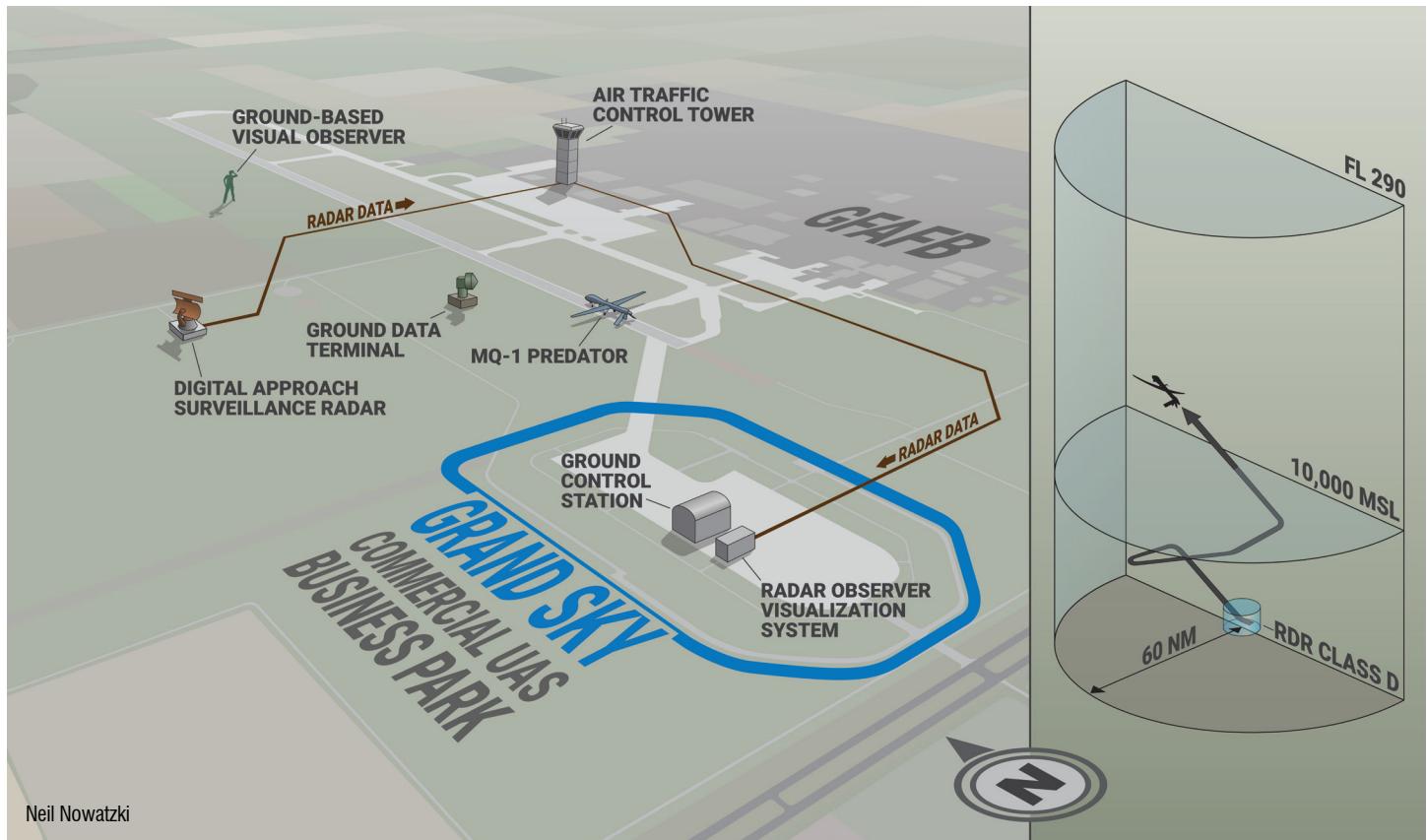
capabilities for UAS platforms.

Through a Research ND collaboration, the University is also partnering with private-sector UND spinoff entities, such as SkySkopes and Field of View, and local utility providers to use drones to inspect power lines.

Heitkamp was impressed with the variety and breadth of UND's UAS research collaborations. She stressed that Congress must urge the FAA to do more to encourage such projects to compete with other nations that tend to be even friendlier to UAS research.

"The sky's the limit and your imagination is really the only thing that limits you in terms of how we can use this technology," Heitkamp remarked.

NORTHERN PLAINS UAS TEST SITE GAINS BEYOND VISUAL LINE OF SIGHT APPROVAL



The beyond visual line of sight (BVLOS) concept of operations, depicting the many elements that are coming together at the Grand Forks Air Force Base and the Grand Sky Commercial UAS Business Park to make the Northern Plains UAS Test Site's BVLOS plan a reality.

The Northern Plains Unmanned Aircraft Systems (UAS) Test Site is revolutionizing how unmanned and manned aircraft share the same airspace.

“The Northern Plains UAS Test Site is one of seven test sites across the country designated by the FAA,” said Nick Flom, the Test Site director.

“We began to wonder how we can differentiate what we do from the others and meet the needs of the unmanned industry.”

One need that arose was being able to fly a UAS without a spotter on the ground or a chase vehicle in the sky to maintain visual contact with the

aircraft at all times. After 18 months of collaboration and negotiation with industry partners, the FAA, and local and regional air traffic communities, North Dakota is poised to do just that. In late December of 2016, the Northern Plains UAS Test Site received FAA approval to execute a phased approach to operating large

unmanned aircraft beyond visual line of sight (BVLOS) in North Dakota using ground-based sense and avoid technologies.

The approval allows a large UAS (55 lbs. and greater) to take off from the Grand Sky Business Park at the Grand Forks Air Force Base without the requirement of having a manned chase aircraft following the unmanned aircraft.

“Our job at the Test Site is to help people and industry who have a need,” said Flom, “and General Atomics (a defense contractor) has a UAS they utilize at the Air Force Base, the Predator. The challenge has been that the FAA requires a large UAS to have a chase vehicle in the sky to visually ensure that the airspace is clear. This requirement is expensive and inefficient.”

“We started working with the FAA,” said Flom, “developing a concept of operations to show how we can provide an equivalent level of safety by having someone on the ground looking at a radar screen instead of using a chase airplane.”

Realizing that everything needed to do this type of testing was readily accessible, they got to work on the proposal.

“We have a unique situation in this part of North Dakota,” continued Flom. “We have a business park operating

out of the Grand Forks Air Force Base with a good radar, which has a refresh rate of up to four seconds. We have a lot of open, underutilized airspace to the west of the Base. There is low population density on the ground, and we have access to the Predator, which has extensive operational experience and a lot of safety case analysis done on it by the manufacturer.”

The radar feeds air traffic data to a visualization system, allowing a user to view all air traffic in the area around the unmanned aircraft. “When we see another aircraft, we can begin to change



Nick Flom, Northern Plains UAS Test Site Director

course,” said Flom. “The system can detect, see, and avoid them.”

The benefits for this type of testing approval are numerous. No new equipment is required to be installed on the aircraft, as this is a ground-based

only solution. The approval enables the Test Site to bring in other customers that wish to conduct BVLOS testing. There is also the opportunity for luring more companies to set up operations in North Dakota.

“We are looking at this from an economic impact for the state of North Dakota,” said Flom. “How do you diversify the economy? We have a very commodity-based funding stream: energy, oil, and agriculture. When they are down, we see the effects. We are looking to bring companies in and use unmanned technologies from the Test Site to support the industry’s need for testing.”

The Test Site is currently assembling the final pieces of the puzzle to make their first BVLOS flight a reality. Getting the physical connection from the radar to the Business Park has been a challenge, because it is a Department of Defense asset that is being brought to the civilian side and there are assurances needed to make sure everything works as planned.

“We are hoping by the end of summer to begin executing flights on this approval and be available for other types of testing and research,” said Flom. “Our goal is to integrate UAS into the airspace and to find solutions that are repeatable for the industry.”

—Jena Pierce

FLYING TEAM TAKES 2ND



Brenda Riskey

The UND Flying Team captured 2nd place among the 26 universities from around the country competing in the annual National Intercollegiate Flying Association SAFECON. Congratulations to the Flying Team members, Coach Liang and the entire Aviation department for an impeccable record, placing first or second in 28 of the last 34 years.

NEW WEBSITE

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EAA AIRVENTURE
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2017



IAC EXHIBITION FLIGHT AT AIRVENTURE - CAMERON JAXHEIMER

Each year, AirVenture air show organizers include an International Aerobatics Club (IAC) exhibition to highlight the skill and discipline that it takes to fly competition aerobatics. UND alum Cameron Jaxheimer has been invited to be this year's demonstrator, scheduled for the Sunday, July 30th air show. Cameron, flying an EXTRA 330SC, represented the IAC as a member of the 2016 U.S. Advanced Aerobic Team. He was the highest-placing U.S. competitor in the World Advanced Aerobatic Competition in Poland last year.

Photography by Neil Nowatzki





Shawna Schill

THREE-MINUTE MANIA

Twenty-four UND graduate students compete in communication contest showcasing their research

Altru Manager of Primary Care Programs Michael J. Little (foreground) joins Student Body President Brandon Beyer and other volunteer judges who were recruited from among UND faculty, staff, students, and community members for the Three Minute Thesis (3MT®) competition.

You can do a lot with 180 seconds and a single visual aid. But could you explain months of deep and intricate academic exploration to someone with no background in your field?

That was the challenge at hand for 24 UND graduate students participating in the first UND Three Minute Thesis (3MT®) competition on April 7th, 2017 at the Gorecki Alumni Center. The event allowed masters and doctoral students to showcase their research and/or creative work to the UND campus and Grand Forks community.

3MT is a research communication competition in which graduate students have three minutes to compellingly and clearly present the significance and value of their research—whether thesis or dissertation—in language accessible to a non-specialist audience.

“The students are allowed one visual,” said Matthew Gilmore, UND associate professor of Atmospheric Sciences and co-organizer of the event. “That visual could be a diagram, photograph or collage that is interesting to the audience and supports the speech.”

In addition to their supporting visual, competitors were judged on how well they captured the attention of the audience, how engaged they were with the audience, how much energy they brought to the presentation and how clearly they articulated their ideas.

“It’s actually quite a challenge for two reasons,” Gilmore explained. “It’s easier to get up and give an hour-long talk to one’s department or research colleagues, because you have more time to go into the details and can use jargon to convey complex ideas. It’s much harder to distill your research to only



Brooke Hagenhoff (right), a master's degree student in Atmospheric Sciences who took first place in the 3MT competition, poses alongside competition runner up, Matt Fuka.

three minutes, because not only do you have to determine the most important message, but you also have to find different words or analogies, in place of jargon, that will resonate with your layperson audience.”

Competitors were selected by their graduate program directors in academic areas ranging from English to engineering. Many had practiced and received feedback from trainers and fellow students during the weeks before the event.

First place was taken by Brooke Hagenhoff, a master's degree student in Atmospheric Sciences. “It’s essential to be able to explain your work not only to the people around you but to the general public so they can understand what you do and why it’s so important,” said Hagenhoff, a Jefferson City, Mo., student, whose winning presentation was titled “When Do Weather Models Misbehave?”

Gilmore said this is one new and important way UND is helping its graduate students prepare for their professional and academic lives. The 3MT experience jumpstarts the kind of concise and impactful conversation needed for job interviews following graduation.

In addition to enhancing the students’ ability to communicate the importance of their research to various publics, the competition also provides student participation incentives—including cash awards provided by UND’s School of Graduate Studies.

—Juan Pedraza

PROGRAMMER PENS SECOND BOOK IN FANTASY SERIES

Latest work by UND Computer Science student Dakota Krout has spent weeks atop genre lists on Amazon

Dakota Krout poses with an electronic version of one of his fantasy genre novels, "Dungeon Born."

Lots of people dream about writing a book. Dakota Krout has done it. Twice.

The computer science senior recently released Dungeon Madness: The Divine Dungeon Book Two, which has been tops in Amazon's fantasy category for several weeks. With more than 260 reviews, it has consistently been earning five stars.

"I'm so happy that people like it," said Krout, who said he writes what he likes to read. "I love the reactions I'm getting." Krout's first book, Dungeon Born: The Divine Dungeon, released last October, was also a bestseller in the fantasy category.

The main "character" in his books is a dungeon, which adventurers must navigate to become stronger or perish. "It's man vs. environment in reverse," Krout said, adding that his work includes the classic themes of greed, risk and reward. He loves puns, and they have a starring role in his books. His wife, Danielle, and other family members have cameos.

The books are popular around the world, especially Finland and Australia. "The book is pirated frequently in Russia," Krout said, "but at least that

means people want to read the story." He promotes his books on social media, especially Facebook, Reddit, and Imgur, a joke and photo sharing site.

WRITING AS A HOBBY

Krout works full time as a programmer for Acme Tools Corp. in addition to being a student, and said he writes as a hobby.

"I don't like television or games," he said. "I like to read and write and hang out with my wife." He said he tried other hobbies, such as music and art, but it was writing that clicked. And it will continue to be a hobby, Krout said.

"I make sure to have a full-time job," he said. "I want to keep a balance, and writing is for fun."

Krout's programming background is useful when he develops plots. "I have a predetermined route—the story goes from point A to B to C," Krout said. "And if that doesn't make sense, I write it anyway and let it backfire for the characters."

Writing a second book was both easier and harder, Krout said: "I had already developed my writing style and was



Jackie Lorentz

able to better create dialogue and flow. It was harder because I wrote the first book for myself, and the second book because there was so much interest from the fans.”

FELLOWSHIP OF AUTHORS

One thing that has most surprised Krout is the fellowship he’s found among other authors.

“I reached out to other authors online and asked for tips,” Krout said. “We talk about writing, dialogue, developing characters. It’s cool to get different viewpoints on how to do things. What’s most interesting is that the really popular authors in my genre are some of the nicest.”

“I was surprised by how tight-knit the

writing community is,” Krout said. He talks to his favorite authors regularly, and has been invited to take part in charity events. His work will soon appear in a compendium of short stories to benefit the Wounded Warrior Project.

Krout said he will continue writing, and his next book will likely be released at the end of the year. He is also writing two other series. “I’ll write the books to their logical conclusion,” he said. “I don’t want to force a series or drag it out.”

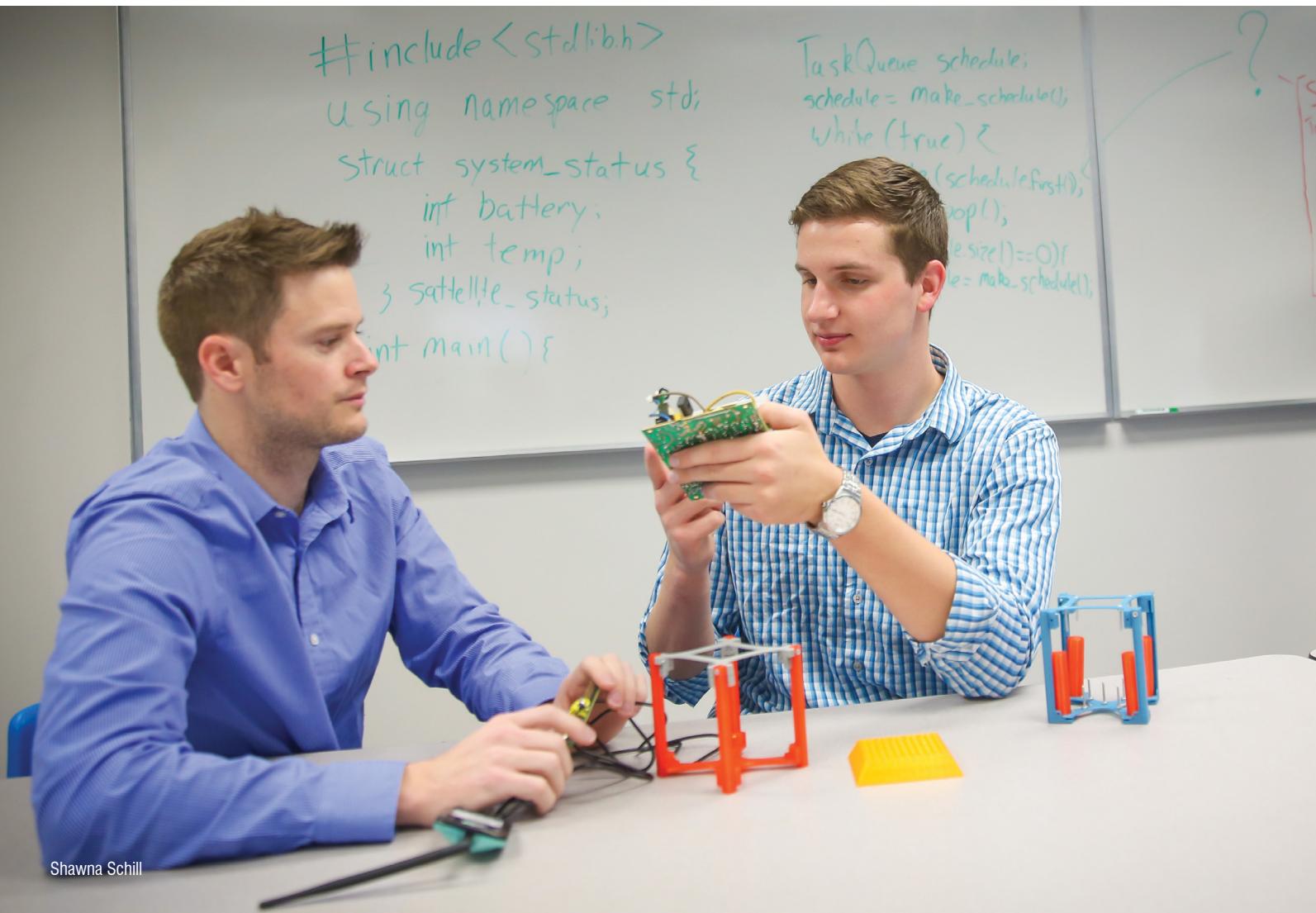
“I write for myself and because I enjoy it,” Krout said. He added that he’d love to see others publish their work.

“I’d love to see more books out there,”

Krout said. “Write for yourself and don’t try to make a hit. Write what you enjoy, and others will enjoy it, too.”
—Jan Orvik

COMPUTER SCIENCE MAKES ITS MOVE

UND Department finds a new home in the College of Engineering and Mines



The Department of Computer Science has moved to the College of Engineering and Mines, with all administrative aspects of running the department transferred to engineering on July 1.

The department will remain in its current space in Streibel Hall, using classrooms and labs as currently assigned. There will be no disruption of teaching or research activities that are currently planned.

Faculty in both Computer Science and Engineering are excited about the move, said Hesham El-Rewini, dean of



the College of Engineering and Mines.

"I expect the computer science faculty to strengthen their existing partnerships with the John D. Odegard School of Aerospace Sciences as they explore opportunities for greater collaboration with their new colleagues in engineering. There is a great synergy between computer science and engineering which will result in numerous new opportunities in both research and academic programs", El-Rewini said.

Most computer science programs in the United States are housed within colleges of engineering, and this move will make UND's program more on par with other programs across the nation, and computer science graduates more competitive in the job market.

A SEAMLESS TRANSITION

"Students will experience no interruption with their classes, and they will receive services and support through the Solberg Student Success Center," El-Rewini said. Engineering's IT service team will work closely with the UND Aerospace technology support team to continue collaboration and to support student laboratories.

"Having Computer Science and Electrical Engineering in one college will help us cover the entire continuum of subjects in data, hardware and software," said El-Rewini. "It will make it easier to collaborate in the areas of cyber security and big data." He added that earning double-majors and minors will be easier and faster.

The College also offers a mentorship program, and peer and industry

mentors will be assigned to computer science students. The Solberg Center will also help detect and solve problems students may have before they affect their grades or graduation.

POSITIVE IMPACT

"Computer science is an area of growth nationwide, and we plan to work together to help grow enrollment at UND," said El-Rewini. And as the department grows, he hopes to hire more faculty. "Growth cannot come without resources."

El-Rewini has met with faculty and staff to ensure a smooth transition, and invited several members of the Computer Science department to his annual leadership retreat.

"We had great conversations about the future of the college and the department," El-Rewini said. "Computer science will play an integral role in the future of the College of Engineering and Mines. The synergy allows us to do great work in cybersecurity, big data, and UAS."

El-Rewini said he will be contacting more than 1,300 computer science alumni to inform them of the change and the opportunities that come with it. He will also add people from the computer industry to engineering's Executive Board of corporate and community leaders.

"This will open many doors for Computer Science," said El-Rewini. "It will highlight their great work and attract more students to the program."

—Jan Orrick

—WHAT IS— **YOUR** —LEGACY?—

You can benefit students at the University of North Dakota John D. Odegard School of Aerospace Sciences by making a gift in your will. Your generosity can cement your legacy and support students for years to come.

Q. Why should I leave a gift in my will?

A. Leaving a gift in your will to the Odegard School through the UND Foundation is a simple way to impact students. Anyone, no matter how rich or famous, can help shape a student's future. Decades from now, even centuries from now, your gift will still be hard at work for students at the Odegard School.

Q. How will my gift be used?

A. You can choose to support scholarships, educators, or facilities of your choice. No matter what, you will be benefiting students. You can give to whatever means the most to you. You decide your legacy.

Q. Is it easy to make a gift to UND in my will?

A. Yes. You can contact Josh Christianson, Director of Alumni Relations and Development, at 701.777.4637 or joshc@aero.UND.edu. He can provide sample language for your will or trust.

**For more information on wills and other gift options,
visit UND.giftlegacy.com.**

UPCOMING EVENTS

EAA Airventure

July 24-30

Oshkosh, WI

UND Aerospace Alumni & Industry Reception

July 26

Oshkosh, WI

UND/ALPA Aircraft Accident Investigation Course

October 2-5

Grand Forks, ND

UND Homecoming

October 2-7

Grand Forks, ND

NBAA Business Aviation Convention & Exhibition

October 10-12

Las Vegas, NV



A UND Super Decathlon with a spectacular fireworks display overhead at last year's EAA AirVenture in Oshkosh, Wis.



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