

# The Longhorn Liftoff

Fall 2007



**UT Design, Build, Fly  
Team Places 6th in  
International AIAA  
Competition!**





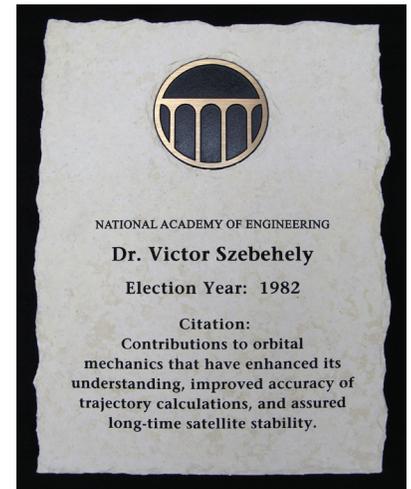
Robert H. Bishop  
ASE/EM Chairman & Professor  
Photo by Caroling Lee

A little over a year ago I asked you to join me in a project to create a compelling storybook illustrating the key contributions of our department to aerospace engineering. The storybook is intended to be a distributed living organism—hanging on the walls of our department, living in specially designed display cases, and on display on the website. I am happy to report that the first chapter of the storybook is complete.

The lobby of the department has undergone quite an uplifting make-over. Students, parents, alumni, and other visitors can see new displays describing key contributions to aerospace engineering by our alumni and faculty. As examples of alumni contributions, we have the original X-43 model presented to us by the project manager, John W. Hicks, BS ASE, 1969. We also have a flight jacket of Robert L. Crippen, BS ASE, 1960, awarded to him after his four Space Shuttle flights. Our faculty contributions are also on display. For example, Dr. Raynor Duncombe donated the first ever tracking map of the Sputnik spacecraft. This document shows Dr. Duncombe's hand notations with the estimated Sputnik ground track. At the time of the event (back in the late 1950's), *Life* magazine covered these contributions of Dr. Duncombe. Other alumni have graciously offered to contribute historical items and interesting stories, and we are working on creative ideas to integrate these additional items into the collection.

The latest chapter of the storybook focuses on the faculty who have received the high honor of membership in the National Academy of Engineering. Did you know that eight of our current faculty are members of the prestigious National Academy of Engineering? Some of you may remember Dr. Victor Szebehely—he was our ninth member of the academy.

It is amazing to think that about one out of every four current faculty members in the department are in the National Academy of Engineering. Working with the same inventive folks who are creating our museum quality displays and a local awards company, we developed an imaginative rock of ages with the names and citations of our National Academy of Engineering members. The new display is now hosted in the hallway outside the main office of the department. The showcase integrates well with the overall design concept of our other exhibits.



If you are counting the years since my first Chairman's Corner article, you may notice that I have been chairman for four years. Four years is the standard term of a department chairman. So yes, I am now starting my second four-year term as chairman. I look forward to another interesting four years. I would like to thank everyone for their substantial support!

Please join me in welcoming Dr. Philip Varghese as the associate department chairman.

# ASE/EM NATIONAL ACADEMY OF ENGINEERING



**Dr. Ivo M. Babuska**

For contributions to the theory and implementation of finite element methods for computer-based engineering analysis and design.



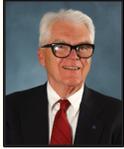
**Dr. Thomas J.R. Hughes**

For contributions to the development of finite element methods for solid-structural and fluid mechanics.



**Dr. Stelios Kyriakides**

For contributions to understanding of propagating instability phenomena in structures and materials and its use for technological applications.



**Dr. Hans Mark**

Leadership in exploring the solar system, nuclear engineering, and application of advanced computers to fluid dynamics.



**Dr. J. Tinsley Oden**

For pioneering work in computational mechanics, which significantly advanced the transformation of nonlinear continuum mechanics into a powerful and widely used engineering tool.



**Dr. Victor Szebehely**

Contributions to orbital mechanics that have enhanced its understanding, improved accuracy of trajectory calculations, and assured long-time satellite stability.



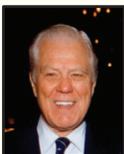
**Dr. Byron D. Tapley**

For exceptional contributions to orbit determination theory, significant applications to satellite geodesy and oceanography, and leadership in engineering education.



**Dr. Mary F. Wheeler**

For the computer simulation of subsurface flow and the underlying mathematical algorithms.



**Dr. Max L. Williams, Jr.**

For fundamental developments in fracture mechanics and for providing guidance to industry and government that has facilitated technology transfer.

## WRW Administrative Lobby Gets a Face-lift



The Sputnik exhibit includes a replica of the original tracking document of Sputnik. Donated by Dr. Raynor Duncombe. Photo by Erin McCarley



The original X-43 model exhibit. Donated by John W. Hicks. Photo by Erin McCarley



Bob Crippen's flight jacket. Donated by his grand-nephew, Matthew Monroe. Photo by Erin McCarely

Thanks to a handful of our alumni and faculty, and the support of Boeing and Lockheed Martin, the department has recently renovated its administrative offices lobby area. When entering the new lobby on the 2nd floor of WRW, you will first encounter the original X-43 model donated by alumnus John W. Hicks. Look toward the wall across from you, and you'll see a striking exhibit which features the first tracking map of Sputnik which was donated by our very own faculty member, Dr. Raynor Duncombe. Turn to your right and look behind you and you'll see Robert Crippen's flight jacket which has been carefully restored and displayed.

If you find yourself on campus in the near future, we invite you to stop by and take a look. We think you'll be pleased. If you have something of historical importance to the department and are interested in donating, we would enjoy hearing from you. Please contact Kendra Harris at [kendra.harris@mail.utexas.edu](mailto:kendra.harris@mail.utexas.edu) for more information.

## Student Kudos

**Paul Griesemer** was selected to receive the 2006-07 William S. Livingston Outstanding Graduate Student Academic Employee Award for his outstanding performance as a Teaching Assistant in Aerospace Engineering.

**Kristin John** was the recipient of the 2007 recipient of the Molly Gottlieb Scholarship. Kristin co-oped with United Space Alliance during the spring and summer of 2006 where she organized several opportunities for her fellow co-ops to enrich their professional experience at NASA Johnson Space Center.

**Nimisha Mittal** and **Johnny Sangree** were both selected to receive University Endowed Presidential Scholarships. The Endowed Presidential Scholarship program was created in 1973 to provide merit-based scholarship support to outstanding UT Austin students.

**Tyler Summers**, a second year Aerospace Engineering graduate student, received a 2007 U.S. Postgraduate Fulbright Scholarship to Australia. He was also designated as the U.S. Fulbright Alumni Scholar in recognition of being the highest 2007 ranked applicant in Australia. Tyler will be conducting research on controlling vehicle formations for one year with Professor Brian D.O. Anderson at The Australian National University in Canberra.

**Jessica Williams** was accepted to the National Science Foundation's Graduate Research Fellowship program for 2007. She is a first year master's degree student in aerospace engineering and is currently researching topics in relative navigation between on-orbit spacecraft. Her research in orbital mechanics and relative navigation in space will advance space missions involving several vehicles.

# Awards & Recognition

## Faculty Awards



**Dr. Maruthi Akella** has been elected an AIAA Associate Fellow. Dr. Akella specializes in the control of nonlinear dynamical systems that are subject to large uncertainties and has served on the Cockrell School of Engineering faculty since 1999.



**Dr. Ivo Babuska** was selected to receive an Honorary Title from Czech Technical University. Dr. Babuska specializes in numerical solution of partial differential equations, especially the finite element method, and applied mathematics in general. He has served in the Cockrell School of Engineering faculty since 1995.



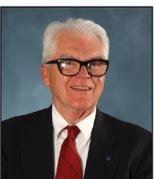
**Dr. Sean Buckley** was the recipient of the 2006-07 ASE/EM Departmental Teaching Award. Dr. Buckley specializes in processing algorithms for interferometric synthetic aperture radar (InSAR) and its application to earth surface deformation phenomena. He joined the Cockrell School of Engineering in 2004.



**Dr. Thomas J.R. Hughes** was awarded the Laurea Honoris Causa in Civil Engineering by Pavia University and received an honorary doctorate from the University of Padua, Italy. He was also elected Fellow of the American Academy of Arts & Sciences and was awarded the Timoshenko Medal from the American Society of Mechanical Engineers. Dr. Hughes is an internationally known expert in computational engineering and sciences. He joined the Cockrell School of Engineering in 2002.



**Dr. J. Tinsley Oden** was awarded the O.C. Zienkiewicz Medal by the Polish Association for Computational Mechanics. Dr. Oden's research focuses on contemporary topics in computational engineering and mathematics, including a posteriori error estimation, model adaptivity, multi-scale modeling, verification and validation of computer simulations, uncertainty quantification and adaptive control. He is the Director of the Institute for Computational Engineering and Sciences.



**Dr. Hans Mark** was honored with the U.S. Navy Distinguished Public Service Award. Dr. Mark specializes in the study of spacecraft and aircraft design, electromagnetic rail guns, and national defense policy. He has served on the faculty of the Cockrell School of Engineering since 1988.

## Alumni Recognition



Austin, TX- Founder and CEO of Apollo Endosurgery, Inc., **Dennis Lee McWilliams**, was recognized by the Texas Exes, The University of Texas Alumni Association, at the 2007 Outstanding Young Texas Ex Awards held on Saturday, May 19, 2007. The Texas Exes inaugurated the award in 1980 to recognize young

alumni who are distinguished in their fields and have demonstrated a continuing interest in The University of Texas and the Texas Exes. A recipient must be under the age of 40 to receive the award.

McWilliams was born and raised in Austin, Texas. He received his bachelor's degree in Aerospace Engineering with honors from The University of Texas at Austin in 1993. After convincing McWilliams to study Aerospace Engineering, Jack Boyd and Hans Mark became his lifelong mentors. John Boyd, Senior Advisor for History at NASA Ames Research Center, said, "I have known Dennis for almost 20 years and found him to be not only a very bright entrepreneur but also a person of superb character, which any university would be proud to have as an alumnus."



During May commencement ceremonies the Cockrell School of Engineering at The University of Texas at Austin recognized four outstanding young graduates who have become influential leaders in the engineering community.

**Laura Johnson O'Donnell** graduated with an Aerospace Engineering degree with highest honors in 1990. She is the founder and owner of Synthese, LLC and works to connect satellites with homes and cars. In 2002, she was named vice president of product development where she led the deployment of innovative services including digital video recording, high definition and interactive. O'Donnell is an active supporter of the University's Aerospace Engineering program and served on their External Advisory Committee from 1996-1999.



**Stephanie D. Wilson**, MS ASE 1992, is scheduled for her second flight in space aboard Space Shuttle Discovery as Mission Specialist for the STS-120 mission to the International Space Station, which will launch an Italian-built U.S. multi-port module for the station.

During Stephanie's first trip to space in July 2006, she supported robotic arm operations for vehicle inspection, multi-purpose logistics module installation and EVAs and was responsible for the transfer of more than 28,000 pounds of supplies and equipment to the ISS.

## GRACE: Measuring the Changing Gravity of Our Planet

Jennifer Bonin, Graduate Research Assistant

Five years ago, when I arrived at UT Austin as a masters student, I was placed on the GRACE project under the direction of ASE professor Dr. Bryon Tapley. My work here has given me an opportunity many of my fellow graduate students do not have: the chance to work with real satellite data. From the start, I found that fascinating.

The Gravity Recovery and Climate Experiment (GRACE) was launched in 2002, with the goal of measuring the Earth's gravity field as it changes over space and with time. The twin GRACE satellites orbit the Earth one behind the other, in near-polar circular orbits. Through the use of an extremely accurate intersatellite K-band ranging system, they measure the distance between themselves to a millionth of a meter. The distance between the satellites changes in response to the changing Earth mass distribution. The precise measurement of these changes allows researchers to measure the gravity the satellites are feeling, which can be turned into monthly maps of the gravitational field of the planet.

Five years ago, I remember being astonished to think about Earth's gravity changing. But gravity is caused by mass, and the mass distribution of the Earth does not stay fixed. Water is the primary mover of mass—it is driven around by ocean currents, rivers, melting ice, atmospheric storms, and human usage. Wherever the water moves to, local gravity increases. In this image of the Amazon region,

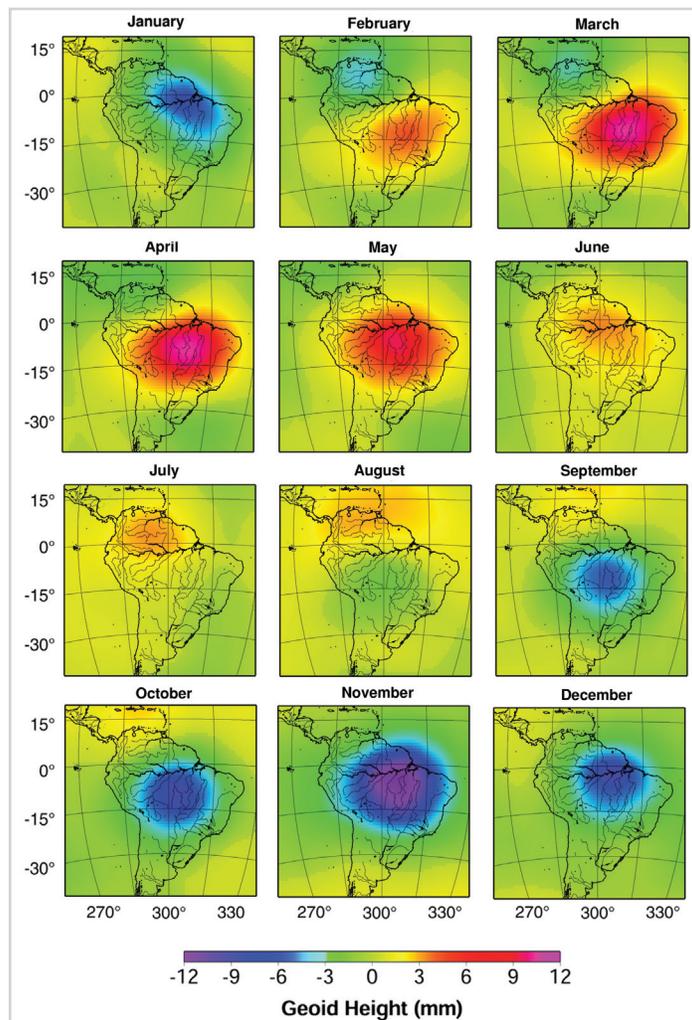
*Twins in orbit fly  
Linked by microwaves reveal  
Earth mass in motion*

GRACE data shows a gravitational signal strongly-dependent on the seasons: more mass during the rainy season and less during the dry. Such information from GRACE has been used to improve not only the Earth's gravitational model, but also models of terrestrial water flow, ocean circulation, melting ice caps, and even the structure of the mass distribution inside the planet.

But GRACE, like any real-life project, has limitations. The scientists using the GRACE data need better resolution—like what the gravitational field will look like on the 50-yard line at UT's next football kickoff—but GRACE cannot answer that. Instead, GRACE gives answers in averages: the average gravity for a month over a region a couple of hundred kilometers wide—the gravity over central Texas in September, in other words.

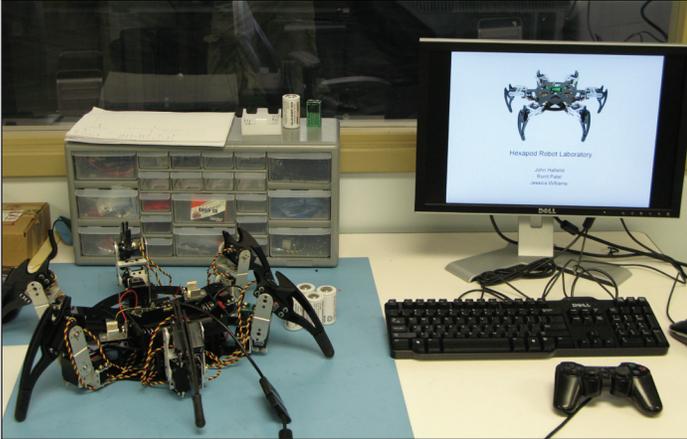
For my research, I am investigating ways we can improve this resolution in both space and time. By developing new approaches for processing the satellite data, we can measure the Earth's gravitational field with the frequency and resolution that the hydrological modelers need. But regardless the outcome of my research, my work at UT has given me a rare opportunity: work on a space-based mission, with real limitations and challenging problems. And, hopefully, my path will end with real solutions!

Further information on the GRACE project can be found online at <http://www.csr.utexas.edu/grace>



*Geoid height (a measure of the relative gravity in a region) in the Amazon changes with the seasons, as measured by GRACE. Positive values signify more gravity than average; negative values signify less.*

## Sensors & Actuators Laboratory



*This hexapod robot in the Sensors & Actuators Laboratory was programmed by students.*

There has been a new addition to The University of Texas Aerospace Engineering department which will enable students to receive further hands-on training. The Sensors and Actuators Laboratory has been developed and is now being offered as a course to graduate students. The students are experimenting with instruments ranging from gyroscopes to sun sensors to magnetometers and robots. These instruments are applied to experiments involving visualization, remote actuation, and attitude determination. The idea was originally proposed by Drs. Bishop and Lightsey and was approved in Spring 2006. National Instruments (NI) became involved by providing financial support and donating some of its CompactRio and PCI data acquisition equipment. NI also provided software to aid the students in studying many different types of sensors and actuators with a large range of input/output interfaces.

The course was offered for the first time in spring of 2007. The students had the opportunity to be creative and receive hands-on experience with real hardware. They applied theory learned in other courses to the designing and building of different experiments. During the first couple of weeks students learned how to use LabView software and National Instruments data acquisition equipment by completing a hands-on tutorial. For the remainder of the semester students formed their own experiments in groups, then performed experiments developed by other students taking the class. Few classes offer the opportunity to take an experiment from the idea phase, through research and design, on to using and building hardware, and finally, testing and performing the experiment. This provided for a lot of work, but a different type of learning experience. "Getting off the tracks every once in a while is a welcome change from the routine of homework assignments" said former student, Eric Rogstad. The students

encountered real world problems and were able to relate their education to actual space applications.

At the end of the semester students presented their experiments to a group of professors and representatives from National Instruments including NI President Dr. Truchard and Vice President Ray Almgren. Ideas and feedback were well received and will be applied to the laboratory to improve the course future semesters. Development will continue through the fall and the laboratory will be available to students for research during semesters when a class is not being offered. The Sensors and Actuators Laboratory continues to be a changing and growing project providing exciting and useful opportunities for numerous students.

### A SYMPOSIUM HONORING BYRON TAPLEY'S 50 YEARS OF CONTRIBUTION TO AEROSPACE EDUCATION, RESEARCH, AND SERVICE



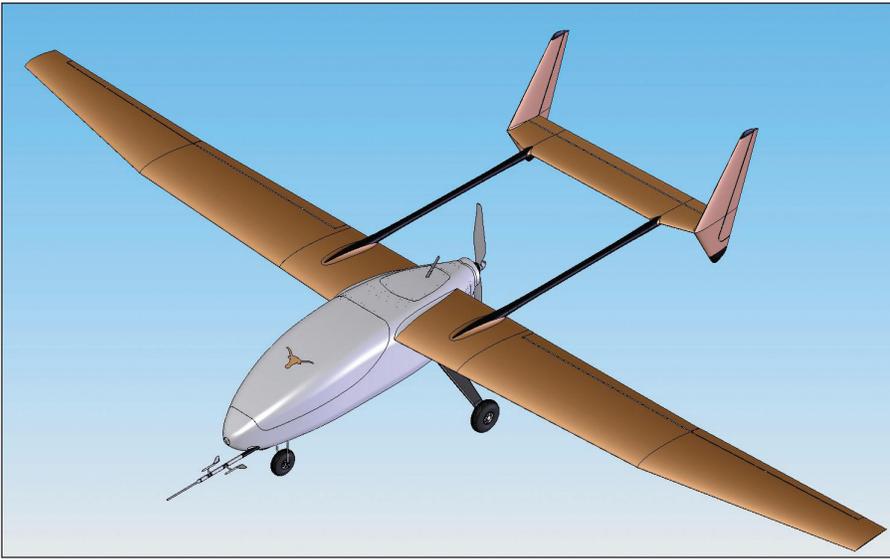
The year 2008 marks 50 years of distinguished contributions to aerospace education, research, and service by Professor Byron D. Tapley, Clare Cockrell Williams Centennial Chair in Engineering, The University of Texas at Austin. To recognize this milestone, a one day technical/scientific symposium will be held in Austin, Texas.

**Friday, February 1, 2008**

<http://www.csr.utexas.edu>

The symposium will provide an opportunity for both oral and published papers containing original research. Papers are sought to reflect the diverse research interests of Professor Tapley, including: orbital mechanics, satellite orbit determination, earth satellite applications, and satellite remote sensing.

## UT's 3rd Generation Unmanned Aerial Vehicle Nears Completion



Conceptual Design of UT's 3rd Generation UAV, *Vespertilio*

With renovations nearing completion on the Lockheed Martin Air Systems Design Lab (ASDL), the department's Design/Build/Fly (DBF) group and the Unmanned Aerial Vehicle (UAV) team are beginning to make full use of all the new opportunities available. All aspects of the aerial systems are improving due to substantial enhancements in student participation and laboratory tools. The increased size of the construction facility has allowed the platform group to greatly expand its capabilities, and the new controls lab enables the controls group to function as a team.

This summer, the platform group led by recent graduates Manuel Gonzales and Eric Lichtenstein completed design work on the much larger and more durable 3<sup>rd</sup> generation UAV, *Vespertilio*. This UAV is designed for extreme versatility in payload capabilities, with increases of 388% in maximum payload volume and 286% in maximum payload mass over the previous generation UAV, *Murciélago*.

An additional goal of the platform design group was durability. All previous UT UAV and DBF airplanes used a wing construction method involving plastic monocoat stretched over balsa ribs to create the wing surface. Although this process is relatively easy to learn, it results in an

inconsistent airfoil shape due to sagging between ribs and is extremely prone to damage. Nearly all previous wings have been damaged either from landings/takeoff, transport to/from airfields, or even storage. The design group chose to undertake the difficult task of building fiberglass-coated wings in order to improve survivability. Different construction methods were evaluated for strength and weight, with the team finally settling on a foam-core wing with a balsa-fiberglass sandwich on the outside. This method overcomes both pitfalls of the balsa rib/monocoat method with relatively minimal weight gain. During the building process, there was a high learning curve in construction methods; however, all the problems have now been addressed.

As the graduating managers left, the torch passed to new undergraduate leads Stephan P. Greening and Michael Szmuk, and the UAV group is now moving smoothly towards completing *Vespertilio*. The iterative nature of the design process has given all group members first-hand experience with systems engineering, dynamic teamwork environments, and a glimpse of the difficult changes they will face in their future careers.

The UAV controls group, led by graduate students Jorge Alvarez and Nolan

Cmerek, has greatly improved reliability over the past summer. The new controls lab in the ASDL has allowed for improved testing and programming. Plagued in the past by communication problems and onboard flight computer issues, the group recently verified in-flight nominal operations for all communication equipment. Inclement weather has greatly hindered in-flight testing of the autonomous control software for *Murciélago*, but the group plans to perform full autonomous flight late October, guided by custom built ground station software. This interface shows real-time flight conditions and allows the user to assign waypoints to the UAV by simply pointing-and-clicking on satellite images in the included Google Maps API.

Work continues in conjunction with Austin-based company, SPEC (Systems & Processes Engineering Corporation), for in-flight LIDAR testing. One of *Vespertilio's* intended payloads is SPEC's 1<sup>st</sup> generation LIDAR, which was too large for *Murciélago* to carry. This LIDAR will initially be used for ground mapping testing, with in-flight obstacle avoidance as a possible future use. Pending funding, the UAV group, under the guidance of graduate student Rick Naething, also hopes to design and build a Signature Aperture RADAR system in conjunction with the Electrical Engineering department.

Due to the progress and success of the UAV and DBF teams, student interest in ASDL projects has increased. Last school year, the DBF team started with approximately fifty interested students. With DBF placing 6<sup>th</sup> in the 2007 competition and the new ASDL available to show to students, team leaders have been able to recruit over 100 students within only the first week of the new semester. Thanks in part to Lockheed Martin's generous donation, the group is now making tremendous progress.

For more information about the Lockheed Martin Air Systems Design Lab, visit <http://www.ae.utexas.edu/asdl>.

## Design, Build, Fly Team Places 6th in International Competition

The University of Texas at Austin placed 6th among 50 entrants in this year's Design, Build, Fly (DBF) Competition, an international competition in which college students design and build remote controlled aircraft to complete different missions. *The Channel 4 News Team*, named for the movie *Anchorman*, took the top UT score, while *Flipper*, named for her really short wings, tried hard, but did not quite make the top ten.

This year's competition involved flying with two separate payloads, one weighing three pounds and the other five pounds, as well as performing ground missions in which the airplane was assembled and payloads switched. The scoring system favored light weight aircraft with short wing spans. When the 2006/2007 DBF competition rules were posted last August, both teams began working on the project. Team members were organized into subgroups to design the aircrafts' structure and propulsion systems and analyze aerodynamic performance and stability and sizing. Computer aided drawing was used to assist with the design.

*The Channel 4 News Team* prototype aircraft was completed in February and test flown several times in order to optimize the design. The competition aircraft was completed the evening before leaving for the competition. Technical inspections were done the first day and the aircraft was deemed competition worthy. The least challenging flight mission was attempted first, and the aircraft took off within 100 feet complete with the three pound payload, flying twice around a 1,000 foot long track. Overall, the aircraft was well trimmed out, statically stable, structurally sound and had the required power to complete the mission.

The next day, the team planned to complete the two ground missions, and attempt the second flight mission with the five pound payload. The ground missions were completed successfully, but the pilot lost control during the flight mission and the aircraft crashed. In switching the payloads, the aircraft's center of gravity had been moved forward by half an inch, a minor change the team overlooked. The center of gravity change made the aircraft nose heavy and difficult to maintain in steady level flight.

With three hours left until the end of the competition and against all odds, the team rebuilt the aircraft and attempted to redo the second mission. Due to unfavorable winds, an aborted takeoff attempt resulted in damage to the nose landing gear and wings. In spite of this *The Channel 4 News Team* placed 6th out of 50 teams signed up to compete. The team's success was a reward for its hard work, and future teams will strive to improve on this.



*Students make repairs to both airplanes several times during the Design, Build, Fly competition.*

*Pictured above: The Channel 4 News Team aircraft placed 6th overall.*

*Pictured right: Flipper aircraft being repaired before its next flight attempt.*



Designs for *Flipper* began last fall and its first test flight took place in December. Throughout the competition, the aircraft crashed and students learned and rebuilt. *Flipper* was not alone—in fact every aircraft that placed in the top five crashed at least once. *Flipper* was a competitive aircraft and could have easily placed among the top five with one successful flight. Team members are confident that next year's team will place in the top three.

# Blast From the Past!

## 1960s

**Charles E. McQueary, PhD, EM 1966**, became Director of Operational Test and Evaluation in the Department of Defense in July 2006 after having served as the first Under Secretary for Science and Technology in the Department of Homeland Security from March 2003 through March 2006.  
[cemcqueary@triad.rr.com](mailto:cemcqueary@triad.rr.com)

**Howell W. Mann, BS ASE 1965, MS ASE 1967**, completed 40 years of service at Lockheed Martin this September and was involved with the F-22 Raptor team that was recently awarded the 2006 Collier Trophy.  
[MrRip@charter.net](mailto:MrRip@charter.net)

## 1980s

**Wiede (Koop) Cutshall, BS ASE 1988**, is an independent consultant, specializing in structural analysis and aircraft certification.  
[wiede@cutshallconsulting.aero](mailto:wiede@cutshallconsulting.aero)

**Norman M. Grady, MS EM 1988**, recently retired from the Army after 26 years. His last assignment was Deputy Facility Engineer, Defense Intelligence Agency. Norman's career highlights include six years of teaching engineering mechanics (US Military Academy, Assistant Professor) and seven years of project management/executive management (US Army Corps of Engineers, Chicago District, Washington DC Headquarters, and Southern District, Basra, Iraq as part of Operation Iraqi Freedom).  
[texex88@aol.com](mailto:texex88@aol.com)

## 1990s

**Santiago Alban, BS ASE 1996**, is a Senior Controls Engineer for Lockheed Martin Advanced Technology Center in CA.  
[santiago.alban@gmail.com](mailto:santiago.alban@gmail.com)

**Kristi (Crutchfield) Beshears, BS ASE 1999**, is a Systems Engineer for FlightSafety Services Corporation in TX.  
[kjcrutch@hotmail.com](mailto:kjcrutch@hotmail.com)

**Matt Bokmeyer, BS ASE 1995**, is an airline pilot for Southwest Airlines.  
[mdbokmeyer@gmail.com](mailto:mdbokmeyer@gmail.com)

**Jenna Lynn Cox (Etheridge), BS ASE 1988**, has transferred to El Segundo, CA with the Boeing Company from Washington DC. She is working as a Satellite Communications Engineer on the Mobile Satellite Ventures project.  
[jenna.l.cox@boeing.com](mailto:jenna.l.cox@boeing.com)

**Jason Richard Cox, BS ASE 1997**, finished his Master's degree in Applied Physics from Johns Hopkins University in summer 2006. He works in the Flight Engineering group at the Boeing Satellite Development Center in El Segundo. Jason and Jenna live in Redondo Beach with their 7 year old daughter, Bella Elena.

**Michael Lo, BS ASE 1992**, writes, "After two years of going back to school, I recently received a Master's in Health Administration from the University of Washington. I am now working at the Children's Hospital in Seattle as the administration fel-

low, equivalent of a management trainee. I look forward to the opportunity of applying engineering training in a complex health care setting."

[mmlloo@aol.com](mailto:mmlloo@aol.com)

**Kuo-Chang (Kevin) Sung, MS ASE 1994**, is Marketing Director of Wireless Terminal Business Unit, Asia Pacific Region for Texas Instruments.

[kevin.kc.sung@gmail.com](mailto:kevin.kc.sung@gmail.com)

## 2000s

**Cecelia "Cece" Caballero, BS ASE 2007**, is an ISS Environmental Control and Life Support System Instructor at NASA Johnson Space Center.

[cecencab@aol.com](mailto:cecencab@aol.com)

**Anthony Chapman, BS ASE 2007**, is a Safety and Mission Assurance Engineer for Wyle Laboratories in Houston, TX

[tony2116@gmail.com](mailto:tony2116@gmail.com)



**Jamin Greenbaum, BS ASE 2004, MS ASE 2006**, was offered a PhD-track Graduate Research Assistantship with the Institute for Geophysics at UT Austin in January 2007.

After a crash-course in radar and GPS data collection, Jamin accompanied his new team to Greenland (pictured left) from April to June to study how summer meltwater is affecting the large ice sheet.

In November, 2007, Jamin will be heading south to take observations of fast moving ice streams in West Antarctica. Both research programs hope to improve predictions of sea-level in the coming decades.

[jamin.greenbaum@gmail.com](mailto:jamin.greenbaum@gmail.com)

**Pooja Joshi, BS ASE 2007**, is a Controller for United Space Alliance at NASA Johnson Space Center.

[poojaajoshi@gmail.com](mailto:poojaajoshi@gmail.com)

**Skyler James LaBuff, BS ASE 2006**, is an ISS Environment Control and Life Support Systems Instructor for United Space Alliance. He writes, "I started work here at NASA-JSC last September and it has been an amazing experience! We conduct all of the emergency instruction as well as training on the following systems: Atmospheric Control, Atmosphere Revitalization, Temperature and Humidity Control, Fire Detection, and Suppression, Vacuum, and Water Recovery and Management."  
[skyler.labuff-1@nasa.gov](mailto:skyler.labuff-1@nasa.gov)

**Tanner Lynn McKee, BS ASE 2005**, is an ISS Environment Control and Life Support Systems Instructor for United Space Alliance. He writes, "We train our students using classroom lessons, Part Taks Trainer lessons, Space Training Mock-up Facility, and Space Station Training Facility simulations."  
[tanner.mckee-1@nasa.gov](mailto:tanner.mckee-1@nasa.gov)

(Blast From the Past continued on page 12)

## Where Are They Now?

### Ronald L. Farris, BS ASE 1977, MS ASE 1978

There is no place like the United States of America. There is no place like Texas. There is no place like Austin. And, there is absolutely no place like the University of Texas at Austin!

I can speak from a bit of experience on this topic as I am writing this article from my current USAF duty station at Kandahar, Afghanistan where I am assigned as commander of the 451<sup>st</sup> Air Expeditionary Group. I also wear a NATO "hat" and serve as the Senior Airfield Authority for our coalition assets that operate out of Kandahar Airfield—in other words, I run the airfield for all aircraft that use it, and command the USAF assets that are based here. This is a very interesting, dynamic, thrilling, exasperating, rewarding job. I have spent most of my time in Afghanistan, in one capacity or another, since August 2006, and have traveled extensively throughout the country dodging rockets, land mines, bullets and bombs along the way.

I had absolutely no idea this is where my engineering degree would lead—but it is a path followed willingly.

Let me tell you, Kandahar is a long way from Jester Center, Gregory Gym, the BEB, the Tower, the Union, the Drag, and WRW (I still haven't figured out what that stands for, but most of my engineering classes were there). I have to also be honest in admitting (all my profs can have a seat though this should not surprise them in the least) that I more survived the curriculum than mastered it. And, I guess that's what UT really instilled in me—perseverance, survival, endurance, self-study, adaptability, tenaciousness, belligerence in the face of overwhelming odds, etc. That and my first real appreciation for beer.

Okay, back to this "road less traveled" story. I matured a LOT at UT at the hands of my guiding professors (Drs. Fowler, Tapley, Schutz principal among them), a few good friends, roommates, and a girlfriend or two. Fond memories, mostly, though I do recall making a 12 on a physics test after two all-nighters in a row. The high point of my UT "experience" was marrying Barbara, another UT student at the time (we were both seniors), who is now my wife of some 30 years and has borne us two wonderful daughters, Amanda and Lindsay, both now UT system graduates with meaningful lives and careers of their own.

From Austin we headed to the NASA Johnson Space Center in Houston where any space-loving aero engineer would be honored to work. And I did love my work there (though I never really appreciated Houston proper since I hate the two things it is noted for: crowds and traffic). NASA let me play in simulators developing procedures for deploying the most significant payloads of our generation—Hubble Space Telescope among them. I was a lead robotic systems expert and worked many shuttle flights in the Mission Control Center. They thought I had some leadership potential and made me the Extravehicular Activities (EVA or spacewalk) section head. We executed several significant missions including the Hubble repair, several satellite rescues, and the like. It was a lot of fun—and all based on the education provided by our world-class instructors and facilities at UT Austin.



Ron Farris, BS ASE 1977, MS ASE 1978 next to a Soviet-era SU-7 that was used by the Afghan Air Corps.

Early in my NASA career I decided to join the military reserves and they, in some bit of poor judgment, decided to send me to USAF pilot training. I loved the air and the feeling of freedom and independence that came with it. I was fortunate to fly high performance fighters and have flown operationally the last three aircraft flown by the USAF Thunderbirds (though never as one of that elite group)—the T-38 Talon, the F-4 Phantom, and the F-16 Falcon. I have "lived the dream" of an aerospace engineer—the aero side as a fighter pilot, and the space side as a NASA engineer. Yes, I wanted to be an astronaut. No, it didn't work out. Close, very close, but no cigar! And that is okay.

After serving in several capacities at NASA (engineer, flight controller, section head, deputy branch chief, project engineer, project manager, office chief), I had an opportunity to give something back to the USAF. There was an active duty fighter pilot shortage in the late 90s, and I was asked if I would be interested in taking a leave of absence from NASA to train the next generation of fighter pilots. After due negotiation, we left NASA in January, 2000 on a three year adventure. Well, the events of 9-11 changed all that and I have voluntarily extended several times now. I am honored to have the opportunity to wear the uniform of an active duty US military officer. Barbara has become a world class Air Force wife by living in seven houses in as many years. I ultimately decided to leave NASA and have now invested myself full-time to the war effort. I am convinced it is the defining event of our generation, and probably of our children's generation. I am also convinced that we can make a difference in Afghanistan.

The rest is history. But, it is all based on the education and "survival skills" learned at UT. I find it somewhat amazing that we, in the great state of Texas, can get a world-class education at such a (relatively) affordable price. So, I will close here, having covered 30 years in 1,000 words or less!

Hook 'Em Horns!

**The Longhorn Liftoff** is published each fall and spring semester for alumni and friends of the Department of Aerospace Engineering & Engineering Mechanics at the University of Texas at Austin.

The department always welcomes your alumni news and comments. Please send them attention to:

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## Keep in Touch!

We enjoy receiving your alumni news, and need more from you to keep the "Blast From the Past" column up to date. To keep in touch, please complete the on-line update form on our Alumni webpage:  
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Thank you for your interest in the department. We look forward to hearing from you soon!



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## ASE/EM Fall Festival 2007!



**What:** ASE/EM parties with live music by local musician Matt the Electrician, free BBQ dinner, student-led activities, and a drawing for free prizes.

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