



WELCOME TO THE STUDENT ISSUE

Inevitably, when I talk to people about UCF, someone mentions that UCF is a very large university in terms of student population. Indeed, this year we have 60,810 students at UCF. This includes the Computer Science division's 2,074 undergraduates (1376 Computer Science bachelor's students and 698 Information Technology bachelor's students), and 314 graduate students (90 Computer Science MS students). Such numbers make some employers very happy to be located in Orlando, but are not what excites our faculty.

What excites our faculty, and me personally, is seeing individual students grow and mature. This is such a daily occurrence that we don't often think about it until something unusual happens that makes us really think about our students as individuals. Two such events recently occurred that I'd like to share with you.

You may have heard about the first event, in late October: our PhD graduate Alan Eustace broke the world's record for highest parachute jump, releasing himself from a hot air balloon that carried him to a height of 135,890 feet (over 25.7 miles or 41.4 km) above sea level, besting the famous record of Felix Baumgartner. You can see video of his jump at http://youtu.be/FQSvowsAUkl. Alan is featured in an article later in this issue, which was written before his record-breaking jump. We did not suspect he had planned anything like this, although it later became clear that he had been working on this parachute jump since 2011. This feat shows that our alumni can accomplish things that are literally out of this world and which do not fit the stereotype of what a "Computer Scientist" is. We knew Alan was special, but this made everyone pause and re-evaluate their mental picture of him.

The second event is of a rather sad nature. A graduate student, Melanie Kaprocki, who was a joint CS and Psychology undergraduate at UCF and starting her second year in the CS PhD program unexpectedly died (of natural causes) in late October. This was a tremendous shock to all of us. I had personally known Melanie from my Programming Languages class, in which she was a student. Melanie was a bright and promising student, and I was very happy to see that she had decided to pursue a PhD in Computer Science. Many faculty praised her memory after Dr. Hughes announced the sad news of her passing. Josh Lazar, an adjunct professor, said that "Melanie was one of the best GTA's I've ever had the privilege to work with at UCF and was just a really good person." Dr. Edwin Nassif, another adjunct, said that "She was always very inquisitive, an excellent student, and someone who was eager to excel." She will be missed not only as a very bright and promising Computer Scientist, but also as an outstanding person. This kind of event makes me, and I'm sure all of our faculty, cherish our students and makes us realize how privileged we are to have them working with us. 1



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DR. ALAN EUSTACE

P8 MELANIE KAPROCKI With all that in mind, I am happy that we had previously planned this special issue of our newsletter focused on our students. We celebrate their accomplishments and personalities. Not only will you learn about Alan Eustace and Melanie Kaprocki, but also about other very interesting alumni. These include Dr. Theresa Haynes, who has made a huge impact in graph theory and Dr. Greg Hanson, who became the first Chief Information Officer of the United States Senate. We also celebrate current students on the UCF Programming team, and future students in the Junior Knights program. We hope you will enjoy this celebration of students. If you have interesting stories to tell about other students at UCF, we would love to hear them!



Dr. J. Greg Hanson

DR. J. GREG HANSON - WHAT IS HE UP TO NOW?

Dr. J. Greg Hanson (Ph.D., Computer Science, 1987) was among the first to earn a Doctorate in Computer Science from UCF. A graduate of the Air Force Academy and the Air Force Institute of Technology (AFIT), he was selected by the Air Force to attend UCF to study Computer Science prior to being assigned to the Pentagon to run the Division that designed and operated the Department of Defense's budget databases. Sponsored by AFIT, Greg had the opportunity to pick any university in the nation that offered a Ph.D. in Computer Science at the time. He chose UCF and matriculated there in 1984, because he believed UCF was destined to be a leading American engineering institution. He was not disappointed.

While at UCF, Greg studied under Dr. Ali Ooroji (his Committee Chair) and Dr. Gary Whitehouse. Together they pioneered a new database machine design, built entirely in software, which received acclaim both in Computer Science and Industrial Engineering publications. During their time in Orlando, Greg and his wife, Linda, lived in Deltona and their son, Matthew, was born in 1985. After graduating in December 1987, and following his Pentagon assignment, Greg served as the Chief Scientist at NATO's Central Command in Brunssum, the Netherlands, where he authored the AFCENT Five Year Data Automation Plan, built the largest office automation network in NATO, and served as the technical lead on the Command's \$ 200M Alternate War Headquarters. After

returning from Europe, Greg's final Air Force assignment was as the top Air Force Software Engineer at the Pentagon. He retired from the Air Force in 1997 and began his career with industry.

Beginning in April 1997, Greg served as the first CTO at Telos Corporation, a \$200M international technology company, where he led product and technology development. He helped create five new businesses including a highly-successful information assurance spin-off called Xacta, where he was a founder and Xacta's first CTO. Four years later, he was recruited to join Universal Systems & Technology (UNITECH) as CTO where he developed and executed technology and business strategies, growing the company from \$42M to over \$80M in annual revenues in less than two years. At UNITECH, Greg led a 100 person software factory developing distance learning products for federal and commercial customers and managed TSA's first support contract– a \$20M, six month effort, supporting the newly-formed TSA's CIO following the tragic events of 9/11.

In 2003, Greg received a call from the Unites States Senate Sergeant at Arms and was asked to once again serve his country as the first Assistant Sergeant at Arms and Chief Information Officer (CIO) for the United States Senate. As the Senate's CIO he was responsible for technology vision, strategy, and day-to-day operations of a 500-person organization and a \$150M budget supporting Senate operations, nation-wide. His duties there included daily interaction with Senators, their staffs, committees, and executive officers of the Senate as well as the House of Representatives and various Federal Law Enforcement and Intelligence Agencies. He was also responsible for systems supporting continuity of operations (COOP), security, and continuity of government (COG) and supported a variety of events including inaugurations, Presidential funerals, a Ricin attack on the Senate office complex, and disaster operations following Hurricane Katrina.

After serving as the Senate's CIO for five years, Greg once again was recruited to return to industry as the Chief Operating Officer (COO) for a leading edge technology company, Criterion Systems. In 2011, he left

Criterion to assume his current position as General Manager for NCI's, Enterprise Solutions Sector. NCI is a publicly-traded company where Greg leads a \$100M business unit with worldwide operations serving the Department of Defense, Federal Civilian Agencies, and the National Intelligence Community.

Since graduating from UCF in 1987, Greg has been busy. In addition to positions summarized above, he is a respected international lecturer and author with numerous awards for leadership and professional excellence including the 2006 UCF Distinguished Alumnus Award, two Federal Computer Week Fed100 Awards, AFFIRM's Award for Leadership in Service Excellence and Management, and AFCEA's Gold Medal for Engineering and Excellence in Information Technology awards.

He has been teaching graduate-level computer science and information technology courses for the George Washington University, the University of Maryland, and the University of Maryland University College (UMUC) since 1988 and has served as a guest lecturer at the National Defense University. He currently serves on the Boards of two corporations as well as UCF's College of Engineering and Computer Science Dean's Advisory Board.

Greg resides in Northern Virginia with his wife, Linda. His children, Matthew and Kaley are both graduates of Virginia Tech and are pursuing successful careers in the technology sector. Greg attributes much of his success to the time he spent, and the things he learned, at UCF. He enjoys staying actively engaged with UCF and was a keynote presenter in UCF's ELI2 Program in 2012.



Ryan working one on one with Sachin

JUNIOR KNIGHTS

In the beginning of the 2011-2012 academic year, Dr. Niels Lobo had just finished his PROFIT grant, where he worked with high school teachers and students, teaching them how to incorporate the software tool, Geogebra, into high school classrooms. After three years, Dr. Lobo had made many contacts in area high schools and wanted to continue to harness that relationship, even though the grant ended. He teamed with Mr. Arup Guha to teach programming to area students for free on Saturdays at UCF, calling the program Junior Knights.

The initial plan was to teaching C programming to students for three hours on 10 consecutive Saturdays. Students would receive an hour lecture, followed by a break, and then work on exercises based on the lectures. Teaching assistants (TAs) would be available to help students on a one-to-one basis. Dr. Lobo

contacted teachers he had met through the PROFIT grant and asked them to share information about the program with their students. Computer Science paid for two TAs for the program. As a result, Alan Wright and Randall Thornton, undergraduates in Computer Science at UCF, were hired as TAs. Alan and Randall were a great help, assisting students and providing detailed feedback to each, via email, about their problem solving technique and programming style. In the first semester, 40 students attended. The semester culminated with a programming contest in the second to last week and a closing lunch where several faculty members spoke to the students and their parents.

In the ensuing semester, Spring 2012, many new students signed up and several former students returned. It was decided to split the 40 plus students into two classes. Arup worked with the students who had taken the course from the 2011 Fall semester, and Niels worked with the new students. Randall Thornton left the program and Dr. Leavens approved replacing him with two new TAs. Dan Gau and

Katlin Joachim were hired and both performed wonderfully. Katlin brought youth and exuberance to the group. As a relatively new programmer herself, she identified easily with the students' struggles. Dan's laid back attitude, knowledge of games, and his ability to relate to students on a personal level was very helpful.

In the Fall of 2012, a former middle school teacher, Leslie Daniels, offered to teach the programming language Scratch as part of the Junior Knights program. Leslie loved teaching and had taught Scratch in her middle school science classes. Due to the rigid structure of middle school curricula, Leslie had been forced to abandon teaching Scratch in her classes. Junior Knights provided her a venue to teach Scratch to middle school students. Arup then decided that it might be beneficial to introduce Python to the younger students. As a result, Junior Knights expanded to three courses: A Scratch class for middle school students, a Python class for the younger students new to programming, and a C class for older



Junior Knights, Fall 2013 Programming Contest

students new to programming. The number of students in each class was 21, 25, and 12, respectfully. Dan Gau remained as a teaching assistant from the previous term. Gabriel Hotchner and Kelvin Ly, both UCF Computer Science students, joined as new teaching assistants. Both Gabriel and Kelvin brought fresh minds to the Junior Knights program working hard and helping tremendously. Gabriel worked with the Scratch students, Kelvin with the Python students, and Dan with the C students. Scratch students enjoyed making animations, Python students had fun with impromptu activities like writing small adventure games to learn the "if" statement, and the C students enjoyed pursuing more serious programs.



Arup illustrating a swap of two variables

Unfortunately, Leslie was unable to continue working with Junior Knights after the 2012 Fall semester, so the program returned to a two course format, one in C and one in Python. A few of the advanced students consulted with Gabriel to get alternate assignments, while Dan still worked with the C students and Kelvin with the Python students. Over 50 students attended sessions. Two high school computer science teachers, Kyle Dencker from Timber Creek and a UCF alum, and Mary Pack from University High School, regularly attended and helped students on an ad hoc basis.

Last semester, Junior Knights served 25 students in both a C and a Python course. This semester, a vast majority of the students took C (17 students), while five students took Python and three were

a d v a n c e d students who were given extra

instruction on programming contests. TAs for the semester were Ryan Villaflores, a Junior Knight alumni, and Kyle Dencker, who was hired officially after his help from the previous semester.

Several program alumni are now majoring in computing disciplines at UCF: for example, Matt Jurewicz, Ryan Villeflores, Josiah Wong and Kevin Colley. Kevin has joined the Programming Team in his freshman year, which is quite an accomplishment! As the program continues, Dr. Lobo and Mr. Guha hope to expose more students to computer science and have more Junior Knights alumni become students at UCF.



Dr. Lobo checking out the scoreboard

THE UCF PROGRAMMING TEAM



Danny Wasserman

The International Collegiate Programming Contest (ICPC) is organized by the Association for Computing Machinery (ACM). The contest is a 2-tiered process: teams compete in regional contests and, based on regional results, some teams advance to Contest Finals to determine the world champion. In 2013-14, over 10,000 teams from more than 90 countries participated in the ICPC.

UCF students have participated in the ICPC for the last 32 years and have finished in the top three in the Southeast region (five states) every year, a record matched by no other school in the region. This includes a record 16 times in first place. The UCF team also finished 2nd in the 2014 North American Invitational Programming Contest (NAIPC) in 2014. Teams from USA and Canada that have qualified for the final round of ICPC were invited to NAIPC. In the previous two years of that contest's existence, UCF teams placed 5th.

The team boasts many success stories. Many of the team members earn top jobs at the most desired companies. One

of last year's World Finals team members, Danny Wasserman, recently started at Google, to work on its knowledge engine. Danny was inspired to try out for the team from his successes at UCF's High School Programming Tournament, which his team won during his senior year. At UCF, Danny participated on the programming team for all four years, with his teams getting 14th, 4th, 1st and 1st place, respectively at the South East Regionals contest from 2010 – 2013. His teams got 48th and 21st place respectively at the ACM ICPC World Finals in 2013 and 2014. In addition to his programming prowess, Danny spent his time sharing his skills with aspiring high school students as a teaching assistant for three years at the Summer Institute at UCF, a summer high school computer science camp.

UCF has also taken the initiative to encourage females and freshmen to participate in ICPC. In the current academic year, 12 females and freshmen were trained as the Developmental (Junior Varsity) team members. Even though the Developmental Team is in its infancy, its members have already achieved some amazing successes. All seven of the initial members from the 2012 team have earned lucrative internships with top companies around the country (Google, Microsoft, Facebook, MathWorks, Ultimate Software and more). Of particular note, Cindy Moline, a high school student at Oak Ridge High School, first came to UCF as part of Dr. Niels Lobo's PROFIT grant. Though that grant focused on using computing tools to teach mathematics, Dr. Lobo also taught programming to the high school students in the group. This inspired Cindy to want to be a computer scientist and attend UCF. Cindy spent two years on the Developmental Team, competed in both the South East Regional contest and the Mercer Programming Contest, and interned at Microsoft this past summer before earning a full-time position there starting in 2015, after she graduates. Cindy also found time to conduct undergraduate research in computer science during her time at UCF. This included reading computer vision topics and implementing algorithms for such things as optical flow detection and k-means clustering using Matlab. Cindy is about to finish her illustrious career as a UCF undergraduate.



Cindy Moline

Please feel free to contact the team faculty advisor, Dr. Ali Orooji (phone: 407-823-5660, email: orooji@eecs.ucf.edu), for more details.

DR. TERESA HAYNES, GRAPH THEORIST



Dr. Teresa Haynes

The Journal of Utilitas Mathematica, in July 2014, published a special issue dedicated to Dr. Teresa W. Haynes, Professor of Mathematics at Eastern Tennessee State University (ETSU), in recognition of her outstanding contributions to the areas of Graph Theory and Combinatorics.

What does this have to do with CS at UCF? Well, Teresa W. Haynes entered the Computer Science Department's fledgling doctoral program in August of 1985, one of the earliest enrollees. She held a B.S. and M.A. in Mathematics Education and a M.S. in Mathematical Sciences with a computer science emphasis, the last in 1984 and all from Eastern Kentucky University.

Those who knew her will recall a vivacious, friendly, competent dynamo who worked hard, aced every course, and who was an exceptional teacher. At departmental gatherings you would often be confronted by a happy face introducing herself. She would attend conferences where she knew no one and come away with a large percentage of attendees as friends. She was admired by both faculty and fellow students.

Dr. Haynes's research interests turned to graph theory and led to a relatively new area known as domination in graphs. Her dissertation, $k-\gamma$ -Insensitive Domination, was written under the direction of UCF Mathematics professor Robert Brigham and committee members Ronald Dutton, Charles Hughes, and George Papadourakis. She

received her degree in 1988, the tenth doctorate granted from the CS department, and immediately entered a tenure track position as Assistant Professor of Computer Science at ETSU in Johnson City, Tennessee.

While still a student she formed professional relationships with some of the leading graph theorists and domination theory experts of the day, including Frank Harary, Gary Chartrand, Peter Slater, and Steve Hedetniemi. She has been a leader in turning domination theory into a major subdiscipline of graph theory with over 170 papers published and under review. In 1998, with Slater and Hedetniemi, she authored the seminal work *Fundamentals of Domination in Graphs* and edited *Domination in Graphs: Advanced Topics*, both of which are now required reading by any serious worker in the field. They have been referenced well over 3000 times. Dr. Haynes is on the editorial board of several international journals and has been the guest editor for three special issues. She is an elected Fellow of the Institute of Combinatorics and its Applications and served as its Vice President from 2003 to 2007.

She has received three awards for outstanding research and two for excellence in teaching. She also has received from ETSU the Outstanding Graduate Mentoring Award in 2013, the first year this honor was given. She counts this as one of her most treasured recognitions. Dr. Haynes currently is Professor of Mathematics at ETSU and holds an adjunct faculty position at the University of Johannesburg in South Africa.

Dr. Haynes is shown in the picture with her five Mi-Ki dogs, a rare breed of roughly five pounders — from left to right: Cinda, Tilly, Kaylee, Rico and Akia. All have received their Canine Good Citizenship Certification and Rico has taken it on himself to guard the homestead. And well he should, since this homestead is special. It's a "green" home that Dr. Haynes built a few years ago that produces negative utility bills! Every week she runs two or three times and does yoga about three days. In addition she finds the time to grow a small organic vegetable garden and to study pottery where she finds working with the clay relaxing.

DR. ALAN EUSTACE, SENIOR VICE PRESIDENT OF GOOGLE



Dr. Alan Eustace

From a Mechanical Engineering student to Senior Vice President at Google, Alan Eustace has had an interesting career. Alan began his career at UCF in 1975, as a Mechanical Engineering student. After the first year, he knew for sure that he hated Thermodynamics and loved Fortran. He asked the UCF Cooperative Education office about summer employment opportunities in Computer Science, and they encouraged him to stay in Mechanical Engineering - "That's where all the jobs are". Always one to take a challenge, Alan changed majors anyway, putting himself through school working weekends and holidays at Walt Disney World, doing SPSS programming for the UCF Business School, working as a part-time programmer at Rollins College, and as a part-time skydiving instructor.

When Alan graduated with a bachelor's degree in 1979, UCF was just starting a Ph.D. program, and invited him

to apply to the program. Alan loved graduate school and teaching, and couldn't believe the university would pay him to do both! The hot topic of the day was VLSI (Very large Scale Integration) Design, which was led by Amar Mukherjee. The challenge was that all the research work in this area was being done on UNIX machines, and the newly acquired VAX 11/780 only ran VMS. Alan and his friend Tim Curry were so passionate about the opportunities ahead that they convinced the university to let them switch operating systems to UNIX during nights and weekends. Under Amar's leadership, UCF was awarded a National Science Foundation grant in VLSI, and made significant contributions to VLSI research.

In 1981 Alan submitted his first paper to the one of the largest and most prestigious conferences of its day - the Design Automation Conference. The paper was accepted, and Alan was off to Ceasar's Palace in Las Vegas Nevada. His room had a huge round bed, mirrors on the ceiling, and a shower in the middle of the room. Quite a shock for a Florida boy!

While waiting to check-in, Alan struck up a conversation with the two people in line behind him As luck would have it, the individuals were John Newkirk and Rob Mathews from Stanford University - two of the most influential people in the VLSI movement. John and Rob took Alan under their wing for the whole conference, giving him the moral support and encouragement to give his first technical talk in front of an audience of over 1000 people. They also took him on a fun trip to the Hoover dam.

When Alan returned from Las Vegas, there was a surprise email waiting. Rob and John had invited him to spend a year in their research group at Stanford. With the support of his advisor, Alan left for Stanford, where he worked on design tools and built a floating point co-processor. When the year ended, Rob and John invited Alan to join the company they were starting - Silicon Solutions.

However, there was this pesky issue of a dissertation. Alan returned to UCF in 1983 to complete his Ph.D. thesis on "Intra Region Routing". He graduated in 1984, just in time to attend his 10 year high school reunion. Alan joined Silicon Solutions and stayed for two years, before moving to Digital Equipment Corporation's Western Research Laboratory, where he was part of the team that built the fastest and hottest microprocessor of it's day - BIPS. He became the Director of the Western Research Laboratory in 1999.

Several of Alan's friends left Digital for a small startup called Google. It took a few years of persuasion, but they eventually set up a breakfast recruiting meeting with Google co-founder and current CEO, Larry Page. It's very hard to say no to Larry, and Alan left to join Google in 2002. Alan's role grew from Director of Research to VP of Engineering. Currently, he is the SVP of Knowledge and Research, a group at Google that includes maps, research, and a new area called machine intelligence, looking at next generation machine learning technology.

Although 3000 miles away, Alan and his wife Kathy still provide financial support and scholarships to the fantastic UCF Programming team. This year the team beat out MIT, Stanford, and Carnegie Mellon in the World Programming Championship Finals in Russia, finishing 21st worldwide . Go Knights!



With great sadness, we learned of the untimely death of one of our graduate students. Melanie Kaprocki passed away at her home on Sunday, October 26, 2014 of natural causes. Melanie was a joint CS/Psychology undergraduate and was completing her first year in our CS PhD program. She was serving as president of the Honor Society for the Computing and Information Disciplines, Upsilon Pi Epsilon, and was a member of the Sigma Alpha Pi Society for Leadership and Success. Her final days were happy ones, both academically and personally as she had just become engaged to her soul mate, Steven Vergenz, another of our CS graduates.

Her advisor, Charlie Hughes, notes that he first met Melanie as an undergraduate student in our Systems Software class. To no one's surprise, she was a top-notch student, never satisfied with her performance (a 98 would mean that she could have worked harder and earned a 100). Charlie also had the privilege to be the professor for the course in which she was the teaching assistant this semester. Her students admired her because she cared about their learning -- she was patient and yet always expected them to perform at their best.

Other CS faculty members noted:

"Melanie was one of the best GTA's I've ever had the privilege to work with at UCF and was just a really good person. Sometimes you know what a student or an individual just has "it" and will be a success in anything they do, and Melanie was that type of person in my eyes. Sad to hear the news. The world lost someone with brilliant potential."

"I was very sorry to hear about this as well. I knew Melanie from the COP 4020 class I taught in Fall 2013. I thought she had a lot of potential also and was very happy to see her in our graduate program. I'm sure we will all miss her."

"All, I too am very stressed to hear about the passing away of Melanie. This past spring, she was in my CEN5016 Software Engineering class. She was always very inquisitive, an excellent student, and someone who was eager to excel. She will be missed not only as a very bright computer scientist, but also as an outstanding person. May she rest in peace."

This was a typical comment from one of the students she taught:

"Melanie was my TA this semester, and though I did not know her very long, her kindness and generosity were apparent. Being as this was a tough class for me, I would go to her office hours on a weekly basis for assistance. She was always very patient and would oftentimes go above and beyond to help me out. I am deeply saddened by this tragedy and my condolences go out to her friends and family. I hope that all of the wonderful memories of Melanie will ease the grief of those who are affected by this misfortune and in time allow them to live lives of great joy. Her loved ones are in my thoughts and prayers."

Though a very serious student, as is obvious from the above accolades, Melanie was also adventurous. She was a certified scuba diver, a skydiver, and an ardent world traveler. Her travels included visits to Canada, Australia, New Zealand, Europe, Kuwait, and destinations throughout the United States. Her goal was to visit every continent with her future husband Steven.

Melanie, you will be missed by your lab mates, professors and fellow students.