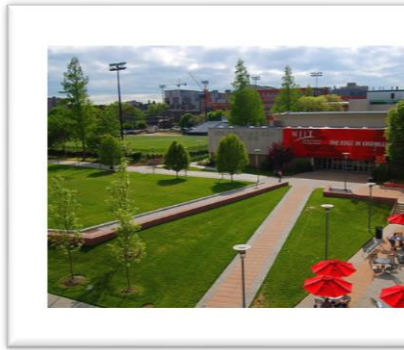


CS NEWSLETTER

Spring 2015



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NJIT Student Speaks at the United Nations

Jinisha Patel, an NJIT junior in Computing & Business, a CS program, spoke at the United Nations Headquarters in New York City, on March 10th 2015.

Jinisha Patel spoke about the importance of encouraging girls to pursue STEM careers during a UN Global Compact event called The Women's Empowerment Principles. The annual event brings leaders from business, Government and civil society to focus on concrete actions businesses can take to achieve gender equality in the workplace, marketplace and community. Patel was the only US college student to speak at the event, whose keynote speaker was Hillary Clinton, the former Secretary of State and now a presidential primary candidate. Patel even got to shake hands with Clinton.

During a panel discussion titled "Technology and Women's Rights – Intersecting Revolutions," Patel discussed how America can encourage the next generation of girls and women to pursue careers in Computer Science. In her comments, Patel, a computing and business major, used an analogy to make a point about gender equity in STEM.

"As it is, women buy most of the products in the marketplace, but we are not the ones mostly making them -- men are," said Patel. "For those who wear contact lenses, imagine walking out of your house wearing only one lens. Not only will you not see the whole picture but you will lack perspective. If women made up half the workplace, they would diversify products and the marketplace in a way never seen before."

United Nations Continued -

Patel was invited to speak at the event by a UN representative she met last year when the two participated in a panel discussion called “Big Dreams in STEM.” The representative was impressed with Patel's comments on that panel and invited her to speak at the UN event.

Patel has established a reputation as a campus leader for women’s rights in STEM. This was not the first time she was invited to a prominent venue. Two years ago, she spoke at a White House technology summit. At the White House, she spoke about ways to encourage young people, especially minorities and women, to cultivate an interest in STEM.

Patel's talk at the UN came at a topical time: New Jersey Governor Chris Christie had proclaimed the week of **March 9–13 to be known as STEM Week in New Jersey**. The inaugural STEM Week was proclaimed in recognition of the fact that STEM is uniquely important to the state: New Jersey is home to the best STEM public high school in the country, it has the highest concentration of scientific professionals in the nation, and is the site of government research facilities that are the envy of the world, according to a press release put out by The Research & Development Council of New Jersey, which is partnering with the Governor’s Office on STEM week.

And for Patel, promoting STEM to girls and women has become a main mission of her life.



Jinisha Patel, an NJIT junior, spoke at the United Nations about empowering girls and young women to study STEM.

“I was really honored to speak at this important UN event,” Jinisha said. “It was a great platform for me to express my thoughts about women in technology. My mother inspired me to study technology so I hope by speaking today I inspired many girls and women to study STEM.”



Jinisha presenting at the UN

A Message from the Chair

by

James Geller

When approaching a crossroads (yes, this is correct grammar, I checked it at <http://www.dailywritingtips.com/at-a-crossroads/>), there is a very strong temptation to use clichés. My approach to dealing with this temptation is to embrace it and use every cliché in the book. Let's start with "time flies." Yes, time flies when you are having fun. Time also flies like an arrow. Let me top this. Time flies like a missile. "A few weeks ago" I was elected chair of the Computer Science Department, and now, suddenly, my three year term is coming to an end on June 30th 2015. After all I must have been elected in 2012, not a few weeks ago.

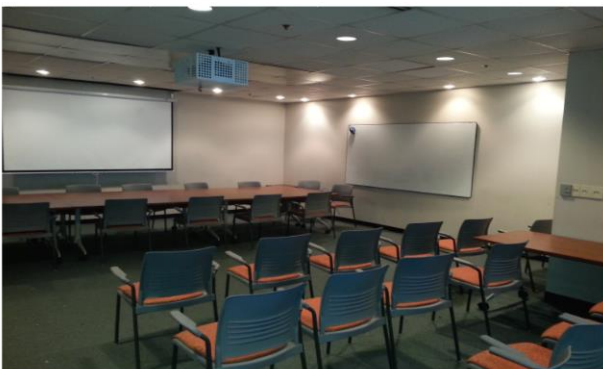
The second cliché is to elaborate on achievements up to this point, real or imagined. Let me name a few that are easy to document: Two CS undergraduate degree programs, the BS and the BA, were reaccredited by ABET. This was most certainly a group achievement with many contributors, but somebody had to get those contributors into one room and get them started. Other achievements that are easy to document are those that anybody in the Computer Science Department can see every day; and because the CS community can see them every day they have probably forgotten that somebody had to put in, well, not blood, sweat and tears, but certainly time, sweat and emotions to make them happen. Let me just enumerate, the new "little conference room," the permanent projectors in the two CS conference rooms, the big screen "TVs" in the two CS conference rooms, the new tables in the large conference room, the new red chairs in the large conference room, the new computers in the offices of every faculty member and every lecturer who wanted one, the new office chairs for every faculty member and staff member who "urgently" needed one,... none of these came about by themselves. Yet, the more difficult achievements are those that are hidden in "just one more phone call to help a student graduate," "one more email message to find a teacher for a class that was suddenly orphaned," "one more discussion with a desperate student who is careening towards an F grade," "one more faculty meeting moderated and conducted in a peaceful and dignified way," "one more hour spent with an angry faculty member who feels wronged by >the University<." These will be forgotten soon, if they have not been forgotten already. So let me at least mention them so that I, myself, will remember them three years from now.

I would like to mention two more topics, because I am especially proud of them: I have initiated a flurry of activities concerning "Women in Computing." I will continue with those activities even after my term as Chair is finished. Similarly, I have initiated annual meetings of NJ/NY Computer Science Department Chairs. This summer of 2015 will be the third one. I will continue to be active in this area... ☺ if the other CS Chairs will let me into the room, after I am not Chair anymore.

The third cliché is to thank everybody who has helped over the last three years, and the list is long. Thus, it is always safer not to make a list at all, because the one person innocently forgotten will never forgive the slight. So, if you know I owe you thanks... I hereby thank you. Sincerely. From the depth of my heart. You have been wonderful.

The fourth cliché is to look out into the future, define the next goals and give my best wishes to my successor. I have accepted a new position as "Associate Dean for Research" of the College of Computing Sciences. As of today, my successor as Chair is not known yet, although there is a rather safe bet who it will be. Dear successor. I wish you good luck, and please do come ask if you need my help. However, I promise you that I will not be a backseat driver ex-chair.

To you
they are
just red
chairs.
To me
they are
trophies
of
victory.



Women
in
Computing.
Yeah!

NJIT Alumni Successful at Developing Video Game



After graduating from NJIT with a B.S. in Information Technology, Michael Sullivan '14 formed an independent game development company called Starfall Studios with fellow IT alums James Wolff '14 and Louis Saporito '15 serving as programmers. Recently approved as an official Wii U developer, the company launched Sneaky Ninja, its first project on Kickstarter.

Their campaign on Kickstarter, a crowd funding option for small companies, started on February 10th and ended on March 12th, earning over \$10,000. The game is set to be released for PCs as well as Nintendo's Wii U.

Sneaky Ninja is a 2D stealth platformer, Sullivan explains, in which players can choose from among four playable, roly-poly characters with a unique ability that gears them toward different play styles.

Think Mario with more ninjas, and Mark of the Ninja with more jumping," Sullivan says. "Just like Mario, you can jump on your enemies' heads to defeat them, but you're also equipped with an arsenal of tools and magical powers to help you fight from the shadows or stay hidden in them!"

Marc Sequeira '02, coordinator of NJIT's Game Development Program and university lecturer in the Information Technology Program in the College of Computing Sciences, remembers Sullivan, Wolff, and Saporito as three of the best game developers that -

- the program has produced over the last 10-plus years. After graduating with his B.S. degree in 2002, Sequeira served as project manager for the NJ Information-Technology Opportunities for the Workforce, Education and Research (I-TOWER) grant at NJIT. He helped launch the university's Game Development program as part of the IT degree program in 2003.

"They are all extremely talented designers and Michael is also a gifted artist, making him the rarest kind of developer: the artist programmer," said Sequeira. "There isn't anything I'm aware of that he can't do. All three were the kind of students who took every gaming-related class they could find until they had finished them all, and then transitioned to working on a number of project courses with myself and others. They also participated in our student organizations and events, especially our Global Game Jam event where they worked as a team on various games."

Sneaky Ninja has been Greenlit on Steam, meaning it will be sold on the largest online video game marketplace. For more information, visit:

<https://www.kickstarter.com/projects/starfallstudios/sneaky-ninja>



Michael Sullivan '14, James Wolff '14 and Louis Saporito '15 of Starfall Studios have launched their first project, Sneaky Ninja, on Kickstarter.

NJIT Conducts Historic Unmanned Aircraft Flights

With a piercing whoosh, the silver RS-16 aircraft took off yesterday afternoon from the U.S. Coast Guard Training Center in Cape May, climbed to about 3,000 ft. and began soaring in loops over the Atlantic Ocean. About 40 minutes later, the unmanned plane slid down the airstrip, turned its nose slightly, and stopped. A large crowd watching from the sidelines began applauding.

The flight, conducted by researchers from NJIT's Crisis Communication Center and partners, was a historic one for the State of New Jersey. NJIT and its partners are the first to conduct unmanned aircraft systems (UAS) flights in the State under a Federal Aviation Administration (FAA) program to test the feasibility of safely integrating drones into national airspace and to assess the research and operational capabilities of communications and mapping sensors aboard the craft.

From a mobile emergency operations center provided by Cape May County and parked on the side of the airstrip, observers watched real-time video streaming from the drone's tailcam as it flew over the ocean.

"We are thrilled to have conducted these flights successfully and safely with the great team we put in place," said Michael Chumer, a research professor of Information Systems at NJIT and director of the Crisis Communication Center and of UAS Applied Research for the university, who is the mission's research director. "We will now apply to the FAA to take these capabilities a step further and at some point we would like to test them during an emergency."

NJIT's program is designed to demonstrate UAS technology that could be deployed in response to natural or man-made disasters to assist State and federal homeland security and emergency management agencies. NJIT launched its first three test flights in public airspace from Cape May, traveling each time for about a nautical mile out over the ocean. The UAS carried several data-collecting instruments in its payload bay, including devices with mapping and communications-relay capabilities, in addition to video streaming.



NJIT researchers are seeking to deploy drone-borne weather sensors that can predict where a major storm will make landfall as many as three days before existing technology now permits. Communications-relay devices are designed to function as "flying cell towers" capable of relaying calls and data from communities in which telecommunications equipment has been knocked out. Enhanced mapping technology would give emergency responders immediate information on damage caused by major storms such as Hurricane Sandy.

"We hope to mitigate the impact of storms and other disasters on communities by gathering information in advance, collecting real-time data on how a storm is developing, for example, to more accurately predict its destructive potential and prepare for it," Chumer said. "Because these flights are unmanned, we can do this without putting people in harm's way."

"This is a disruptive technology, with strong potential in the homeland security, emergency-preparedness and communications spheres, so I expect many more useful applications to emerge," he added.

In 2014, NJIT was the first New Jersey institution to receive a Certificate of Waiver/Authorization (COA) from the Federal Aviation Administration to conduct UAS test flights in national airspace and was the first to fly them. The Pennsylvania-based company American Aerospace, which specializes in long endurance unmanned aircraft systems flights, operated the UAS from the Cape May facility.

Unmanned Aircraft Flights Continued -

The real-time sharing of intelligence gathered by the UAS, including streaming video, is enabled by Mutualink, a secure interoperable communications platform that gives people on the ground the ability to see in real time what the aircraft sees in flight, providing the link between the unmanned craft and responders.

After each flight, the team assessed the drone's operational performance as well as its success in gathering data, which NJIT shared with the FAA and emergency management agencies.

According to the FAA, unmanned aircraft presently fly in public airspace under very controlled conditions. The Department of Homeland Security, for example, conducts border and port surveillance by UAS. These vehicles are not authorized to fly in areas over major urban zones with the highest air traffic densities. The agency, charged by Congress with testing drone safety and coming up with recommendations to regulate them, developed the COA process in 2012.

Observers at the test flights included elected officials from Cape May and Cape May County, as well as economic development officials, representatives from US Senator Cory Booker's and US Representative Frank LoBiondo's offices, UAS experts from the FAA and emergency management agencies, as well as industry partners. Neale Messina, senior director for business development for the Products and Solutions Division of SRI International in Princeton, the former Sarnoff Corporation, was among them.

The RS-16, with a wingspan of nearly 13 feet, is one of the first professional-grade long-endurance UAS designed for civilian applications. The craft weighs 85 lbs. and can fly for 12 to 16 hours carrying up to 25 lbs. of sensors and other applications at a speed around 65 knots on just 1.5 gallons of gasoline.

In the future, NJIT drones have the authorization to fly as far as 14.5 nautical miles out over the ocean, as high as 10,000 feet, and for as many as 14 to 16 hours at a time.

Reaching Out

On Friday February 20th, Dr. Yvette Wohn from the IS department went to the Rutgers Preparatory School in Somerset, NJ, to talk about the beauty of computing. The audience consisted of female Rutgers Prep students, teachers, alumni and panelists.



CS Alumni Pub Night

On Thursday February 26th NJIT hosted the first-ever CS/CCS/CIS alumni pub night at our very own Highlander Pub. Hopefully there will be more such events in the future.



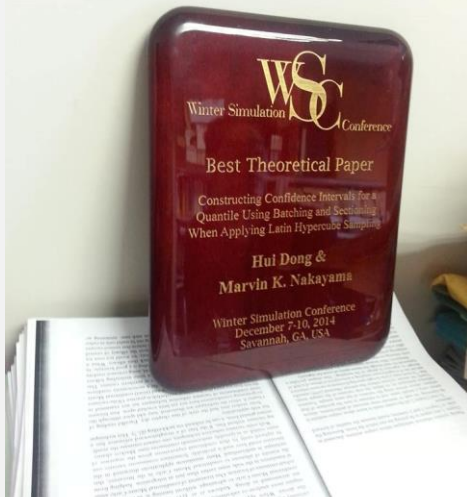
Open House

On Sunday March 1st, NJIT hosted an Open House for Computer Science, Information Systems, and Information Technology. The turnout was so large that some attendees were forced to stand in the back due to a lack of chairs. This is a great development for CCS.



Best Paper Award

Professor Marvin Nakayama of the Computer Science Department received the prestigious Best Theoretical Paper Award from the top conference in Simulation late last semester.



DARPA Award

Congratulations to professor Kurt Rohloff for his efforts and successes with DARPA.



Innovation Day

Wednesday March 25th was Innovation Day at NJIT.



Pictured above are finalists Dima Aref and Siddharth Thiruvalluvan posing with CS Chair James Geller. Their project is titled *A Cancer Prediction Web Server using Bioinformatics and Single Nucleotide Polymorphisms*. Advisor: Professor Usman Roshan.

Sources

Some articles in this newsletter were taken from the NJIT online news feed. To read more quality articles about the CS department visit:

<http://cs.njit.edu/news/index.php>

About Us

The Computer Science Department is part of the College of Computing Sciences. The College comprises about one fifth of the NJIT student population. The CS department offers a full range of degree programs in Computer Science (BA/BS, MS and PhD), in addition to special programs such as Cyber Security and Privacy (MS), Bioinformatics (BS, MS), Software Engineering (MS) and Computing and Business (BS, MS). The Bioinformatics degree is also available in a pre-med option.

The **mission** of the Computer Science Department

- Provide quality undergraduate and graduate education in both the theoretical and applied foundations of computer science and train students to effectively apply this education to solve real-world problems thus amplifying their potential for lifelong high-quality careers and give them a competitive advantage in the ever-changing and challenging global work environment of the 21st century
- Conduct research to advance the state of the art in computer science and integrate research results and innovations into other scientific disciplines
- Provide computer science education and training to students in other departments at NJIT and Rutgers-Newark, and
- Provide computer science expertise to the people of New Jersey and the nation

The **vision** of the Computer Science Department

- Build a strong research and teaching environment that responds swiftly to the challenges of the 21st century.

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