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## UH Computer Science Ranked Among Top 50 in U.S.

In 2011, 2012, and 2013, Computer Science at the University of Houston has ranked among the top 50 U.S. universities in the Academic Ranking of World Universities (ARWU). The ranking also places UH Computer Science among the top 75 in the world.

For the ARWU computer science category, institutions are evaluated according to their academic and research performance. Factors considered include faculty and alumni winners of Turing Awards, the number of highly cited researchers, and papers published in the top computer science journals.

**In 2011, 2012, and 2013,  
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ranked among the top 50 U.S.  
universities in the ARWU.**

There is little doubt that computer science at UH has made great strides in the last 10 years with world-class research programs and high-quality M.S. and Ph.D. programs.

Hence, this ranking comes as no surprise to the members of the department.

Yet, to be listed among the elite universities in the world is an extraordinary honor for UH Computer Science that will have a significant long-term

impact. Attracting talented students and faculty members to UH becomes easier with external recognition, which we hope will lead to a virtuous circle of improvement in quality and reputation.

## Game Design Students Excel at Microsoft Competition

### 2013: Half of Game Design Finalists from UH

Students in the University of Houston Interactive Game Development Program continue to excel at Microsoft's Imagine Cup U.S. competition, the world's premier student technology competition.

In 2013, two UH teams were among 10 finalists chosen from thousands of America's brightest young computer science students to reach the final round of the 11th Annual Imagine Cup U.S. Finals. The event showcased teams from the three major competition categories – Games, Innovation, and World Citizenship.

As top 10 finalists, the UH teams presented at the U.S. Finals Demo Day at Microsoft's Silicon Valley Campus in Mountain View, Calif., on May 13. Demo Day activities included each gaming team's live presentation, feedback from the judges, an opportunity for final changes, and submission of the final prototype for hands-on evaluation by the judges. Judges evaluated the game entries using four criteria – fun, execution, innovation, and business viability.

The College of Natural Sciences and Mathematics hosted a reception on May 15 at the Hilton Santa Clara, celebrating the UH teams' achievements and bringing together NSM alumni living in California. Alumni and donors got a chance to watch the game demos and meet the students on the two finalist teams.

### 2014: Team Solipsoid Secures Spot in U.S. Finals

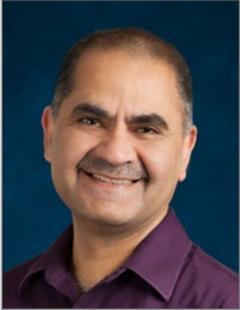
The UH Interactive Game Development Program yet again proved itself as a premier powerhouse by producing a finalist team at the 2014 Microsoft Imagine Fund U.S. competition. This year, Microsoft replaced the U.S. Imagine Cup competition with U.S. Imagine Fund competition.



UH's Team Solipsoid, led by Randal Staewen and Sean Howard, is one of 11 finalist teams and one of only two game design teams to reach the final round. Their game is called Unnatural Selection. As in the previous year, there are three major competition categories – Games, Innovation, and World Citizenship.

As finalists, Team Solipsoid will present their game at Demo Day on April 25. The three winners of the U.S. Imagine Fund will represent the nation in the 2014 Imagine Cup World Semifinals.

## Message from the Chair



It gives me great pleasure to launch the inaugural edition of "CS Now!," the semesterly newsletter of the University of Houston's Department of Computer Science. In recent years, the extraordinarily talented students, staff, faculty, and alumni have not only built a world-class research and teaching facility, but have also generated an unparalleled buzz of activity that makes us all proud to be members of this

community.

For the third year in a row, computer science at UH has ranked among the Top 50 in the United States according to the Academic Ranking of World Universities. This achievement is evidence of the high quality of research, primarily driven by our faculty and graduate students. For the fourth consecutive year, student teams from UH have been among the finalists in the Microsoft Imagine Cup gaming contest, a testament to the excellent quality and work ethic of our students and the innovative coursework that provides a solid foundation in computing. For several years, the department has hosted a Research Experience for Undergraduates program with support from the National Science Foundation that brings talented young researchers from across the country to Houston for the summer.

Perhaps more importantly, several new dimensions and activities have been added to the UH computer science community in recent years. Two new student organizations – the Graduate Student Association and CSGirls – have emerged and join CougarCS in promoting student-led activities ranging from Hackathons to Career Fairs. In November 2013, the first UH Computer Science Alumni Mixer was a huge success. This newsletter is another important step for the department to stay in touch with our alumni and the Houston community.

We truly believe that the department is in the midst of a "virtuous cycle." As the department achieves milestones in academic excellence and community activity, it becomes a more attractive place, leading more talented students and faculty to join and a larger section of the community to participate, which in turn, leads to more milestones. Together, we can ensure that we have a world-class academic program and provide leadership and talent to Houston and Texas in the field of computing which is the major engine of the world economy today.

I invite all alumni and friends of the department to stay abreast of the developments by visiting our website frequently ([www.cs.uh.edu](http://www.cs.uh.edu)) and by joining the UHCS Network community LinkedIn group.

*Jaspal Subhlok*

Chair, Department of Computer Science

## Entrepreneurship Workshop+Startup Lab



The Computer Science Entrepreneurship Workshop+Startup Lab held in October was open exclusively to UH computer science students. The program is part of UH Bauer College of Business' entrepreneurship program that aims to teach students with technical skills how to turn their business idea into a reality.

"We've been working closely with the Department of Computer Science for some time now and the workshop was a first step in developing entrepreneurship opportunities specifically for computer science students," said Hesam Panahi, a clinical assistant professor in Bauer who organized the workshop.

The two-weekend workshop offered a series of lectures about startup resources, fundamental principles in developing a business model, and the importance of customer validation. During the first weekend, the workshop also included guest speakers, most of whom were entrepreneurs with a computer science background.

The second weekend offered students the opportunity to gather in teams and form ideas to draft a business model and to work with mentors from the startup community to develop an initial pitch. The weekend ended with pitches to the workshop's group of mentors, who provided constructive feedback.

"Students came in at different stages of the process. Some already had launched their startup but needed more clarification on first steps, others took an idea they came in with and made progress on the business model," Panahi said.

The workshop was a success, bringing in 20 students to form the four teams that presented to their mentors on the final day.

## Computer Science Launches Specialized M.S. Degree Tracks

Starting in Fall 2013, the Department of Computer Science revamped its M.S. program by introducing multiple tracks, each designed to develop in-depth knowledge in a domain of computing that is in high demand in industry. The tracks initiative was undertaken to better match the knowledge and skills of our M.S. graduates to job openings locally and nationwide. The goal is to better serve the students and make the M.S. degree more valuable and attractive.

Specialization tracks are currently being offered in Data Analytics, Interactive Media, and Parallel and Distributed Systems. A general track on Core Computer Science is also offered for students interested in developing broad expertise in fundamentals of computer science.

More tracks are expected to be added in emerging areas of computing based on employer demand.

## Video Games to Promote Physical Activity in Youth



Video games capture the attention of young people. Prof. Zhigang Deng's group, in collaboration with Baylor College of Medicine, hopes to capitalize on that fascination by creating games that promote physical activity.

"We're going to design youth-oriented, immersive games where the player's live body actions can control the fate of an avatar in a virtual world," Deng said. "The object is to take something fun and tie it to

physical activity. This age group is at risk for low levels of physical activity."

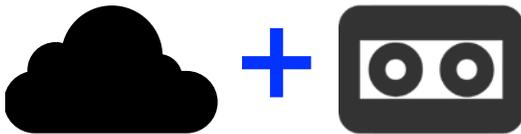
Deng says that players appear to identify with avatars, particularly those that resemble the person playing the game. The games will be movement driven, and Deng is designing a method to unobtrusively measure calories burned while playing.

"If we can encourage a habit of physical activity through video games that kids enjoy, we hope the behavior will be maintained over time," Deng said.

This project is funded by a \$428,000 grant from the NIH's National Institute of Child Health and Human Development.



## Using Magnetic Tape to Enhance Data Storage in the Cloud Computing Era



Data backup and archiving is an important aspect of business processes to avoid loss due to system failures and natural calamities. As the amount of data and applications grow, concerns regarding cost-efficient data preservation force organizations to scout for inexpensive storage options.

A recent paper published by Prof. Larry Shi presents a technique to integrate Magnetic Tape with Cloud storage to come up with an inexpensive storage solution while keeping most of the power features of Cloud storage, such as instant availability from anywhere, fast access, and high reliability.

Shi's group designed a middleware software that manages the data upload and download requests and intelligently uses Magnetic Tape or Hard Drives depending on the users or application requirement. Due to its easy adaptability with state-of-the-art storage practices, the middleware contributes by providing the much needed boost in reducing storage costs for data archiving in cloud and collocated infrastructures.

## Shutdown Illustrates How Fast U.S. Government Can Update Websites

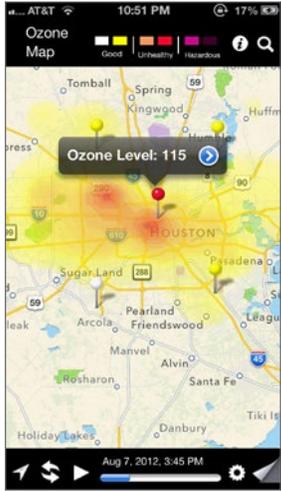


Despite reports on how much the U.S. government struggles with websites, such as the website created for implementation of the Affordable Care Act, it is reassuring that most government entities can update their websites within a day after they are asked to.

This conclusion is the result of research done by the Networked Systems Laboratory at the UH Department of Computer Science. The team was able to use the government shutdown as an opportunity to study the efficiency of IT departments of various parts of government.

The research team tracked government websites and their update times finding that 96 percent of the websites were updated within 24 hours after President Obama signed HR 2775 into law, ending the government shutdown. It is worth noting that two websites took eight days to update.

## Real-Time Houston Air Quality App



Now, Houstonians have a tool to help determine air quality in their communities and throughout the greater metropolitan area. “OzoneMap” is a free smartphone and tablet app (for both Apple and Android products) that delivers real-time air quality reports.

“OzoneMap” features a map of the greater Houston area. Ozone clouds (in color) are tracked in real-time, as they move through different parts of the city. Conditions range from good (white) to hazardous (purple). The app’s users can also learn about the health effects of ozone.

“This belongs to a new generation of weather apps that give real-time and location-precise information about environmental pollutants. For example, instead of warnings about ‘high ozone levels in the Houston area all day long’ that you typically get on the weather channel, the app can show you ‘high ozone levels on your street from 2-3 p.m.’,” said Prof. Ioannis Pavlidis.

Computer Science Ph.D. student Ilyas Uyanik and undergraduate Ashik Khatri, both from the Computational Physiology Lab, developed “OzoneMap” under the supervision of Pavlidis.

The app is made possible through a partnership between the University of Houston, Air Alliance Houston and the American Lung Association and was funded through a \$450,000 grant from the Houston Endowment.

## Making Computer-Automated World Safer

The use of sophisticated computer systems to control complex physical components in real-time has grown at a rapid pace. Examples include automobile adaptive braking, industrial robotic assembly, medical pacemakers, autonomous vehicular travel, remote surgery, physical manipulation of nano-structures, and space exploration.

Since all these applications interact directly with the physical world and often have humans in the loop, their physical safety must be ensured. The correctness of these safety-critical systems depends not only on the actions they generate, but also on the time at which these actions occur.

Prof. Albert Cheng’s research formally analyzes the physical safety and performance of automotive systems and avionics, which are examples of computing systems that interact with the physical world. His research can determine how quickly these systems can respond to the environment or human needs, and the group’s research has

also been used to enhance and guarantee physical system safety and performance.

Cheng plans to communicate the results of this research at leading conferences in this field, such as CPSWeek which will be held in Berlin, Germany, April 14-17. The research is funded by a \$415,999 grant from the National Science Foundation.



## Automatic Detection of Phishing Emails Based on Natural Language Processing



Phishing emails attack in-boxes on a daily basis. In these emails, the sender tries to steal sensitive information from Internet users. There are many direct and indirect damages caused by phishing, including additional equipment, software, and manpower needed to combat the issue.

It is estimated that the damage caused yearly runs from several hundred million to billions of dollars.

Prof. Rakesh Verma’s research group is designing new techniques for automatic phishing email and website detection that are comprehensive and can use the context of the

emails to improve detection. In a recent research paper, an email body-text only classifier is presented that achieves accuracies of more than 95 percent on a phishing email dataset with false positive rate of less than 5 percent on two good-email datasets. When this classifier is combined with email header analysis and a link-based classifier, accuracies of more than 99 percent are achieved with a low false-positive rate. The classifiers use semantics to enhance robustness and do not require frequent retraining as do some machine-learning based classifiers.

This research is funded through a Security and Trustworthy Computing grant from the National Science Foundation.

## Deng, Yun, Baez, Johnson - Teaching Excellence Award

**Prof. Zhigang Deng, Chang Yun, Jose Baez-Franceschi and Prof. Olin Johnson** received UH's Teaching Excellence Award for Group Teaching in the Interactive Game Development Program. The award recognizes a cluster of faculty who demonstrate a strong commitment to teaching and student success, work together collaboratively to improve student outcomes, and demonstrate effective and innovative teaching. In about five years, they developed an innovative game education program that is extremely popular with students. The program has won consecutive national recognition in Microsoft U.S. Imagine Cup competitions: 2nd and 3rd (2010); 1st, 2nd and 3rd (2011); 3rd and 4th (2012); and 2nd and 3rd (2013).

## Verma - Lifetime Mentoring Award

**Prof. Rakesh Verma** received the UH Lifetime Faculty Award for Mentoring Undergraduate Research. This UH career award, given to one member of the faculty per year, acknowledges a professor's exceptional efforts over the years in demonstrating a commitment to undergraduate research. Verma has mentored 35 undergraduates, including two Provost's Undergraduate Research Scholarship winners. He co-authored 15 peer-reviewed publications with his undergraduate advisees. Among the undergraduates he advised, two went on to receive a Ph.D. in Computer Science, one received a J.D., six received M.S. degrees in Computer Science, and one an M.A. in Economics. Four are currently enrolled in Ph.D. CS programs.

## Elizabeth Faig - From Start to Finish



Hundreds of graduate applications for computer science cross her desk every year. Frequent calls from eager students and emails asking about the admissions process fill up her day.

And at the end of each semester, Elizabeth Faig smiles as she lines up the computer science graduate students at the graduation ceremony.

"I'm glad to see them when they arrive, and I'm glad to see them graduate,"

said Faig, who has served as graduate admissions advisor for the Department of Computer Science for the past 10 years.

Faig is a proud Houstonian and an alumna of the University of Houston. She earned her bachelor's degree in fine arts from UH in 2002. She also has a bachelor's degree in geology with a minor in computer engineering from Vanderbilt University.

Over her 25 years of service to the university, she has worked in Postal Services, Admissions and as a computer science graduate admissions advisor. Faig is always thinking about new ways to improve the system and has streamlined graduate admissions.

When she's taking a break from reviewing graduate applications or working on class scheduling, she's passionate about art and is an avid reader who also enjoys gardening.

## Huang - Chairman's Choice Award



Every year, the chairman of the UH Department of Computer Science has the honor of recognizing a faculty member's overall contributions to research, teaching, and service. The 2013 winner of the Chairman's Choice Award is **Prof. Stephen Huang**, who has served in the department for the last 32 years.

Prof. Huang is best known for his educational initiatives. He is the PI of the department's first NSF Research Experience for Undergraduates (REU) which offers undergraduate students motivation and training to pursue a graduate degree. During the last nine summers, more than 100 students have participated in the REU Program with resounding success. These undergraduate students have co-authored more than 40 conference and journal papers over the last nine years. In addition, Prof. Huang established the GAANN Fellowship Program, supported by the Department of Education. This program currently supports nine U.S. nationals toward their Ph.D. degree. Overall, Huang has mentored seven Ph.D. students, over 30 M.S. students, and more than 20 undergraduate students.

Huang, in accepting the award, stated, "It's a great honor to receive this recognition from my colleagues. I am glad that my work has made a difference in the department."

## Shi - Academic Excellence Award



**Dr. Weidong (Larry) Shi** is the 2013 recipient of the UH Computer Science Academic Excellence Award. This award recognizes trailblazing research not bounded by traditional disciplinary boundaries.

His research mission is to address existing and emerging challenges faced by the society with innovations in computing and technology. To accomplish this goal, his research team has made significant contributions in securing computing systems, in novel user authentication approaches for mobile computing, and in transforming the cloud-computing model. Larry's ultimate goal is to create transforming solutions under the model of everything as a service. His motivation originates from the trend that in the coming era, every technology will eventually become a service. This will profoundly change how research outcomes of computing science will be provisioned and adopted by society. His work is currently funded by the National Science Foundation and the Department of Homeland Security.

In accepting the award, Shi mentioned, "I would like to thank everyone in the department for creating an open environment that allows me to explore the frontiers of computing."

## CougarCS Organizes Career Fair



CougarCS, the computer science student organization, and the Department of Computer Science hosted the Fall 2013 Computer Science Career Fair on October 2.

The four-hour event, held in the Shamrock Ballroom at the Hilton University of Houston, drew 28 companies from software, financial, and oil and gas industries seeking bright minds with solid computer science backgrounds. More than 170 students took advantage of this opportunity to connect with future employers.

A reception held immediately after the career fair allowed company representatives, CougarCS officers, and select computer science faculty members to meet and form networks, assess the event, and discuss how to improve it.

The career fair is jointly organized and hosted by CougarCS and the Department of Computer Science twice a year – in mid fall and early spring. Each fair attracts more than two dozen companies from the Greater Houston area because UH computer science students are highly regarded in the business community.

The companies present at the career fair include Pariveda Solutions, Schlumberger, Hewlett Packard, J.P. Morgan, The Reynolds and Reynolds Company, PROS, Tata Consultancy Services, Spectra Energy, P97 Networks, Intergraph Corporation, WhiteHat Security, MRE Consulting Ltd., Automation Solutions Inc, Softway Solutions & Aramco Services Company, Gimmal, CAPSHER Technology Inc., NetIQ, and Smartbridge.

## Graduate Student Association Launched



Computer science graduate students came together to form the inaugural Graduate Student Association (GSA) to interact more actively with the department, especially in areas that directly affect academic affairs. GSA hopes to provide various resources to fellow graduate students and act as a bridge between the faculty, administration, and students.

The Department of Computer Science welcomes the launch of GSA and plans to engage the group in efforts to improve departmental services to graduate students. The association has organized several Ph.D. and M.S. student open houses and plans to organize social events.

## Club Hub: Computer Science Girls

The Computer Science Girls (CSGirls) student organization is the first UH computer science organization dedicated for women interested in computing. Of the 500 computer science undergraduate students, only 12 percent are female. Of those, about 4 percent will graduate with a computer science degree, according to departmental statistics.

CSGirls hopes to combat and change these startling statistics.

The brainchild of senior Estefannie Gutierrez de la Garza, CSGirls aims to encourage female students to stay in the field by inviting successful women for inspirational talks and offering workshops to help students hone their skills. The organization provides volunteer opportunities, social/networking events, study groups, research assistance, and many other tools for women interested in computing. The group also participates in external events.



This spring, CSGirls kicked off the “Big Syster” mentoring

program as well as a volunteering program. Dallas Kidd and Estefannie G. De la Garza won the Microsoft Sponsored Award at the HackRice hackathon in January 2014 for creating a “CSGirls App” that allows users to receive information and updates on upcoming meetings and events.

## Students Bring Creativity to Hackathon



Two computer science student organizations, CougarCS and CSGirls, hosted a three-day hackathon at the University of Houston in November. Forty-five UH students from various majors formed teams and dedicated 48 hours to develop their apps at the hackathon. On the last day, each team presented its app before judges including Paul DeCarlo, Microsoft Development Platform Evangelist. Team Cougar was declared as winner and received Nokia smartphones as the award.

CougarCS and CSGirls co-host the UH hackathon once a semester. The event is open to all UH students regardless of their majors.

## Networking With Friends Old and New



More than 40 UH computer science alumni, students, faculty, and staff gathered for a Computer Science Happy Hour on October 29, 2013, at Stag's Head Bar. Computer science alumni visited with professors and exchanged stories with current students. Among those

in attendance were alumni working in various industries ranging from data management to oil and gas and cyber security.

The Department of Computer Science at UH continues to be a

national leader in game design, data mining, medical biometrics, and security technology. Graduate and undergraduate students come from around the globe to work with world-class professors to discover new applications and make a major impact on the global economy. Our alumni go on to be leaders in game design, managers in corporations, innovators in the medical industry, and entrepreneurs.

The Happy Hours are part of a new tradition designed to bring great minds from computer science together to talk about their recent projects, growth, and ideas. We hope to see you at the next Happy Hour!

## Student Awards – 2013

### Undergraduate Excellence Award

Estefannie Gutierrez de la Garza, Sabah Akbani, James Bates, and Ha Vu

### Best Ph.D. Student Award

Binh Huy Le and Huy Nguyen

### Best Junior Ph.D. Student Award

Xifeng Gao and Yu Li

### Best M.S. Student Award

Chrysanthi Chaleva-Ntina

## Ph.D. Showcase Awards Spring 2013

### Best Overall Poster Award

Binh Le

### Runner-Ups for Best Poster

Apurva Gala, Huy Nguyen, Vishwanath Venkatesan, and Xu Yan

### Honorable Mention for Poster

Swaroop Pophale

### Best Research Presentation Award

Malcolm Dcosta and Ilyas Uyanik

### Runner-Ups for Best Research Presentation

Duc Duong, Zechun Cao, and Avinash Wesley

### Honorable Mention for Presentation

Sujing Wang

## Graduates – Fall 2013

### B.S.

Randa Altaezi  
James Bates  
Cody Beers  
Harsh Bhasin  
Jacob Bolton  
John Cates  
Roberto Chupin  
Kevin Correll  
Christopher Cruz  
Shawn Cunningham  
Johnathan Evans  
Paulino Garza  
Joshua Hand  
Phillip Hares  
John Hindmarch  
Alexandro Jimenez  
Robert Keevil  
Nam Le

Chuong Le  
Chris Lin  
Wilfred Llemit  
Hai Ly  
Andrew Mbiam  
Matthew McCaslin  
Sam Messina  
Brandon Mikeska  
Brian Nguyen  
Nhung Nguyen  
Bryan Nwosah  
Mark Parker  
Khoa Phan  
Vu Phan  
Corey Pon  
Jonathan Sanders  
Aaron Thai  
Anthonylemin Tran  
Lance Truong  
Wilmer Turcios

Anthony Valle  
Carl Van Der Smissen  
Blake Vansickle  
Oscar Villarreal  
Josue Villarreal  
Ha Vu  
Malcolm West  
Anthony White

### M.S.

Deepa Balaprakash  
Mayank Bhati  
Wei Cao (w/ thesis)  
Mayank Chamoli  
Xiao Cheng (w/ thesis)  
Rucha Deshpande (w/ thesis)  
Joseph Dombrowski  
Michael Dowgun  
Anirup Dutta (w/ thesis)  
Anil Gummadi

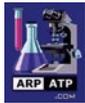
Md Tarikul Islam (w/ thesis)  
Siddharth Joshi  
Srinivas Kodali  
James LaGrone (w/ thesis)  
Fang Liu (w/ thesis)  
Eswar Manapuram (w/ thesis)  
Sudhaker Manikonda  
Mohammed Quraishi  
Manas Saha (w/ thesis)  
Bangsheng Sui (w/ thesis)  
Ramya Tata  
Mahmut Unan (w/ thesis)  
Varun Shimoga Prakash (w/ thesis)  
Chen Xi

### Ph.D.

Emil Bilgazyev  
Wei Ding  
Son Hoang  
Vishwanath Venkatesan

# CONTACT

## Sponsors



## Submit News

Please submit Alumni News to [csnow@cs.uh.edu](mailto:csnow@cs.uh.edu).

For information on upcoming alumni events, connect with our LinkedIn group - UHCS Network – Computer Science at University of Houston.

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