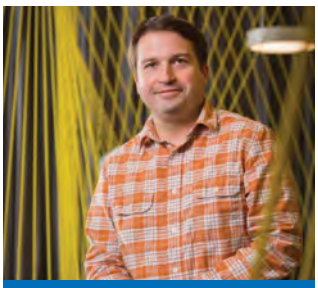
University at Buffalo The State University of New York
[SPRING 2017]
[COMPUTER SCIENCE AND ENGINEERING DEPARTMENT]

CSE LINKS



Co-founder of ACV Auctions and CSE grad **Dan Magnuszewski**.

[ALUMNI NEWS]

CSE alum is leading Buffalo's hottest startup

ACV AUCTIONS BRINGS DISRUPTIVE TECH TO AUTO AUCTIONS

Since launching two years ago, ACV Auctions has become one of Buffalo's most successful startups.

The company won the $1 million top prize at the 2015 43North business plan competition and raised another $21 million in angel and venture capital financing. It also employs dozens of people in downtown Buffalo and other locations.

The secret to its success? An online platform that allows used car dealers to quickly bid and buy used automobiles.

"We have taken a lot of the headache out of the process," said **Dan Magnuszewski**, co-founder of the company, who received a bachelor's degree from CSE in 2005. "And by making it more efficient, we are saving sellers and buyers money."

The company, which has more than 3,000 customers in New York, Massachusetts, Pennsylvania and Ohio, is making plans to go nationwide.

[FACULTY NEWS]

Lu Su receives NSF CAREER award

Driverless cars. Smart thermostats. Robot vacuums.

All are examples of the Internet of Things (IoT), the process of connecting the physical world to the web. While promising, many of these systems are susceptible to hacking and other failures.

CSE's **Lu Su**, an assistant professor who joined the department in 2014, received a $508,860 National Science Foundation CAREER award in February to build a robust, reliable and secure computing framework for IoT devices.

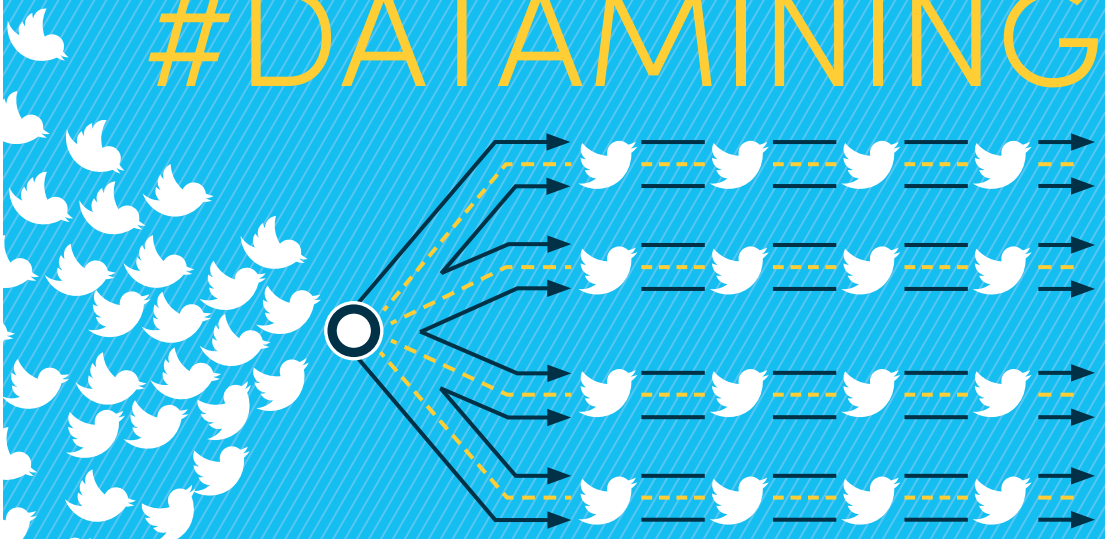
The framework consists of a truth discovery mechanism that distills true information from the deluge of sensory data generated by IoT devices, a security and privacy mechanism, and an incentive mechanism that selects reliable participants to maximize the

[CONTINUE **AWARD** PAGE 2]

Su

[FACULTY RESEARCH]

#DATAMINING



Gao

CSE'S JING GAO MINES SOCIAL MEDIA DATA TO MAKE ROADS SAFER, SUBWAYS MORE EFFICIENT

The next time you're stuck in traffic, or waiting too long for the subway, go ahead and tweet your frustration. It could help CSE's **Jing Gao** fix the problem.

Gao is part of a multidisciplinary team of UB engineers that is mining social media data to improve transit operations.

One study examined hundreds of thousands of tweets from the Buffalo Niagara region during 19 days in December 2013. Gao and colleagues found that snow-related tweets can be analyzed in real-time to bolster computer models. In turn, these computer

[CONTINUE **DATA** PAGE 2]

[VOICES]

A Message from the Department Chair

Dear CSE alumni and friends,

Our 50th anniversary celebration will take a great leap forward on May 11 at a special alumni event at the SUNY Global Center in New York City.

The event includes a panel discussion on our best memories of computer science and engineering at UB during the past five decades. It's also a tremendous opportunity to network, meet alumni and learn about the amazing projects that CSE faculty, students and alumni are working on.

For example, two early-career researchers, **Lu Su** *and* **Jing Gao**, *are featured in these pages. Su recently received the prestigious National Science Foundation CAREER award to build a robust, reliable and secure computing framework for IoT devices. Gao, who received a CAREER award last year, is breaking new ground in data mining, and finding novel applications in health care, transportation, cybersecurity and more.*

Meanwhile, our alumni continue to distinguish themselves and make us proud. **Dan Magnuszewski** *(BS, '05) is co-leading ACV Auctions, one of Buffalo's most promising startups that is poised for nationwide growth. And DxContinum, a machine-learning company co-founded by* **Kannan Govindarajan** *(PhD, '96), was recently acquired by ServiceNow, a cloud computing company in Silicon Valley.*

Lastly, I want to congratulate the Class of 2017! Ceremonies will be held May 19 (graduate) and May 20 (undergraduate) at Alumni Arena. A special commencement dinner will be held May 19 at Templeton Landing on the Buffalo waterfront.

Visit **cse.buffalo.edu/50/** *to register for the dinner and the alumni event in New York City. I'm looking forward to seeing you!*

Yours,

Chunming Qiao, PhD, IEEE Fellow
Professor and Chair
You can contact Dr. Qiao at **qiao@buffalo.edu**

[EVENTS]

UCLUB2.0, MINECRAFT EDITION

On Saturday March 4, CSE and other UB partners hosted UClub2.0, an event that brought UB staff and faculty together to network and socialize in a family-inclusive environment.

At the event at the Student Union on North Campus, UB families explored the popular sandbox video adventure game, Minecraft. CSE students played a special role by coaching and teaching youngsters on the finer points of the massively popular game.

The children built, invented, and explored in beginner, intermediate and advanced groups while adults socialized in the Flag Room.

[FROM **DATA** PAGE 1]

models can be used to recommend safe driving speeds and which roads motorists should avoid during inclement weather.

Another study tracked New York City subway ridership through Twitter during big events, specifically the U.S. Open tennis tournament and New York Mets baseball games in 2014. The engineers found that tweets can be used to improve subway operations, such as event planning, route scheduling and crowd regulations.

In other words, #HelpIsOnTheWay.

"Social media offers a cost-effective way to obtain real-time data to monitor subways, roads and other environments," says Gao, who joined CSE in 2012. "Our results suggest that data from apps like Twitter can help transportation officials prepare for and react to many different scenarios."

[FROM **AWARD** PAGE 1]

quality of collected information.

The work will facilitate an array of applications that have significant societal impacts, including greater security and economic efficiencies. Su will also develop educational curriculum and outreach activities designed to attract underrepresented groups to computer science and engineering.

Su is the latest CSE researcher to receive the NSF CAREER award. Last year, **Jing Gao** and **Dimitrios Koutsonikolas** each received awards. In 2014, **Steven Ko** received the award.

[NEWS BRIEFS]

CELEBRATING EXCELLENCE

Rudra

CSE's **Atri Rudra** will deliver a plenary talk at the 49th ACM Symposium on Theory of Computing (STOC 2017) in Montreal this June. STOC 2017 is part of a 5-day Theory Fest sponsored by SIGACT (ACM Special Interest Group on Algorithms and Computation Theory). The talk is based on an award-winning paper Rudra authored with CSE's **Hung Ngo** and his student **Mahmoud Abo Khamis**.

Kevin Shaffer of Sentient Science teamed up with CSE to present a Scientista event on Structured Query Language (SQL) in March at Davis Hall. Scientista is a national organization that empowers pre-professional women in STEM fields.

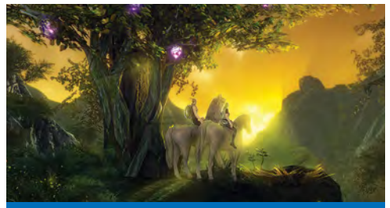
Govindarajan

DxContinum, a Silicon Valley based machine learning company co-founded by **Kannan Govindarajan** (PhD, '96), was acquired by ServiceNow, a cloud computing company also headquartered in Silicon Valley. Govindarajan has joined ServiceNow as director of machine learning platform engineering.

CSE won the best paper award (No. 1 out of 322 submissions) at the IEEE International Conference on Biomedical and Health Informatics (BHI'17) in February. The paper is titled, "A Tempo-spatial Compressed Sensing Architecture for Efficient High-throughput Information Acquisition in Organs-on-a-chip." Lead authors are **Chen Song** and **Aosen Wang**, PhD candidates in the lab of CSE's **Wenyao Xu**.

[RESEARCH]

People remain calm during apocalypse, study suggests



An image from the popular online game ArcheAge used in the study.

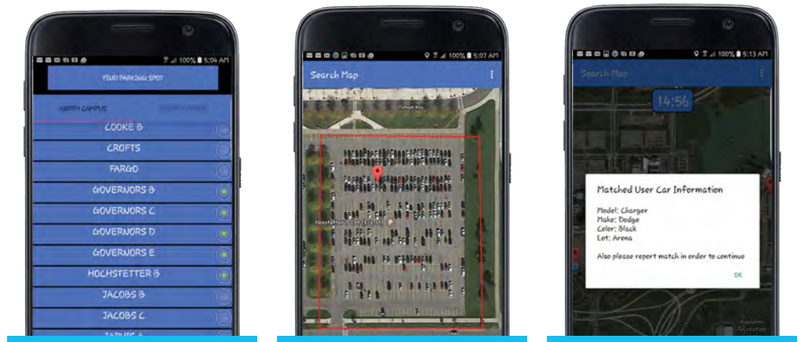
With the world ending, will you do good deeds or break laws?

A new CSE study, based upon the virtual actions of more than 80,000 players of the role-playing video game ArcheAge, suggests the former.

Kang

The study, led by CSE postdoc **Ahreum Kang** found that despite some violent acts, most players tended toward behavior that was helpful to others as their virtual world came to an end.

"We realize that, because this is a video game, the true consequences of the world ending are purely virtual. That being said, our dataset represents about as close as we can get to an actual end-of-the-world scenario," says Kang, who joined CSE in March 2016.



1. Upon arriving on campus, users select lots they want to park in.

2. When other users leave, they tag their parking space and wait for the spot to be claimed.

3. When a match is made, each user receives a description of the other's vehicle and view the location of the space on the map.

[STUDENT INNOVATION]

CSE students develop campus parking app

Remember trying to find a parking spot on North Campus? Good, then you'll identify with this next story.

Patrick Kearney, a nontraditional CSE student, has a full-time sales job. As a result, he doesn't have time to "stalk" students for a spot. Instead he joined senior CSE majors **Jaskirat Singh** and **Andrew Mingola** to create "Park by Karma."

"Park by Karma," shown above, is available for UB students to download for Android users.

[STUDENT AWARDS]

Hacking Lake Erie

CSE UNDERGRADS EXCEL AT GREAT LAKES TECH CONTEST WITH TEXT MESSAGE SYSTEM

Despite improvements to Lake Erie, Buffalo's snowmaking machine suffers from pollution, algal blooms and other troubles.

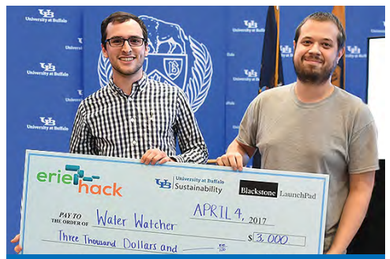
CSE sophomores **Michael Brown** and **Morgan Sansbury** created a text message-based system called WaterWatcher to change that. It allows cellphone users to check water quality, report problems and learn about the lake.

"Imagine having access to local water quality, one text message away," said Brown.

Because the platform is Short Message Service (SMS) based, and not a downloadable app, WaterWatcher doesn't require a data plan.

"It's a lot easier to implement SMS than it is to get apps in a million people's hands," Sansbury said.

The duo won $3,000 at the quarterfinals of ErieHack, a tech competition among students from Cleveland, Detroit and other Lake Erie communities.



Michael Brown (left) and **Morgan Sansbury** at the ErieHack quarterfinals.

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School of Engineering and Applied Sciences

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CSE TAKES MANHATTAN!

In advance of this fall's 50th anniversary celebration in Buffalo from Sept. 28–Oct. 1, CSE is hosting a special alumni event in New York City on May 11.

The event, held at the SUNY Global Center in Manhattan, will celebrate the department's five decades and include a panel discussion on how the department has evolved since its founding in 1967.

"We can't wait to visit the Big Apple and see many of our distinguished alumni," says Chunming Qiao, professor and chair of CSE.

MAY 11, 2017 | 5:30pm - 9:30pm
SUNY Global Center
116 E 55th Street, New York City

Event tickets are $20 and include drinks and hors d'oeuvres. Please register by May 5th, 2017.

For more information on this event, visit:
cse.buffalo.edu/50

ATTN: CSE ALUMNI

We want to hear from you! Keep us updated on your personal and professional lives. Visit: **bit.ly/28lqakd** and complete the **"STAY IN TOUCH"** survey.

Also, feel free to send news, photos, videos, awards, achievements and other related content to **cse-dept@buffalo.edu** or

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CSE IS CELEBRATING ITS 50th ANNIVERSARY!

CSE 50
1967-2017

[SEPT. 28 - OCT. 1, 2017]

We are planning events that will highlight 50 years of excellence at CSE, and we want you join us. For more info visit:

cse.buffalo.edu/50

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[SUMMER 2017]
[COMPUTER SCIENCE AND ENGINEERING DEPARTMENT]

CSE LINKS

[FACULTY RESEARCH]

SPEECH SECURITY

APP USES SMARTPHONE COMPASS TO PREVENT VOICE HACKING


Ren

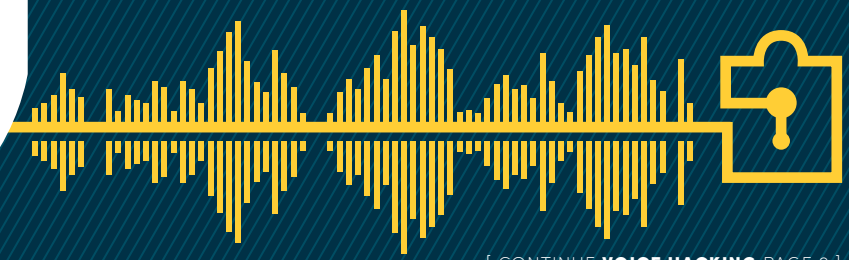
While convenient, Siri, WeChat and other voice-based smartphone apps can expose you to a growing security threat: voice hacking.

With just a few minutes of audio samples, attackers can replay your voice convincingly enough to trick people, as well as top digital security systems. The consequences, from impersonating you with your friends to dipping into your bank account, are terrifying.

Using only tools already on smartphones, including the compass, CSE faculty are creating an app (described in an award-winner paper) to stop this threat.

"Every aspect of your life is now on your phone," says CSE's **Kui Ren**, one of the study's lead authors. "That is your security hub. It is really critical now."

> ***"Every aspect of your life is now on your phone. That is your security hub. It is really critical now."***
> — Kui Ren



[CONTINUE **VOICE HACKING** PAGE 2]

[FACULTY NEWS]

Qiao named SUNY Distinguished Professor


Qiao

HE IS FOURTH CSE FACULTY MEMBER APPOINTED TO SUNY'S HIGHEST RANK

CSE chair **Chunming Qiao** has been named a State University of New York Distinguished Professor, the highest faculty rank in the SUNY system.

He was among three UB professors and 21 SUNY faculty members appointed to the rank by the SUNY Board of Trustees in May.

"This distinction recognizes that UB faculty are among the best in the world and have a transformative impact through their research and scholarship," said **Charles F. Zukoski**, provost and executive vice president for academic affairs.

Qiao is one of the world's leading authori-

[CONTINUE **CHAIR** PAGE 2]

[DEPARTMENT NEWS]

UB gets $3 million to hire AI, robotics researchers

SUNY has awarded UB $3 million to add faculty researchers with expertise in artificial intelligence and robotics.

The funding, from SUNY's Empire Innovation Program, is a boost to CSE, home to many of UB's scholars in AI and robotics.

"From self-driving cars and traffic informatics to cybersecurity and advanced manufacturing, UB has a remarkable core of researchers working in artificial intelligence and collaborative robotic systems. This timely investment from SUNY will enable us to hire additional faculty members and cement UB's status as a national leader in these critically important fields," said **Liesl Folks**, dean of the School of Engineering and Applied Sciences.

The new researchers will build upon CSE's existing expertise in machine learning, computer vision, human-robot collaboration, cybersecurity and more. They will support UB's efforts in advanced manufacturing, transportation (including traffic informatics and autonomous vehicles) and other areas.

"These significant investments from SUNY will greatly enhance the University at Buffalo's ability to recruit topflight faculty members who will strengthen our research enterprise, educational opportunities and impact on the Buffalo Niagara region and beyond," said **Venu Govindaraju**, UB's vice president for research and economic development, and SUNY Distinguished Professor of Computer Science and Engineering.

[VOICES]

A Message from the Department Chair

Dear CSE alumni and friends,

Our 50th anniversary celebration, from Sept. 28 to Oct. 1, is quickly approaching. So I'd like to fill you in on some details concerning this momentous event.

Before beginning, however, I want to thank our wonderful faculty, staff, alumni, students and friends who have already put so much time and energy into ensuring that this conference highlights CSE's impressive contributions to computer science and engineering.

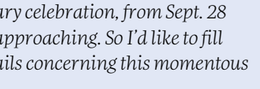
The program kicks off the night of Thursday (Sept. 28) with a welcome reception and undergraduate demonstrations at Davis Hall. For those of you who have not yet visited Davis Hall, I'll think you'll be impressed with our new home (site of the infamous trailers).

We'll then shift over to Center for the Arts on Friday for the graduate research portion of the conference. Concurrently, we'll be running bus tours of Buffalo and Niagara Falls. (For those who haven't been here lately, I think you'll be pleasantly surprised with the region's renaissance.) We'll also be hosting a golf outing and cookout at the magnificent Glen Oak Golf Course in East Amherst.

On Saturday, the alumni symposium will take place at the Center for the Arts. On Sunday brunch will be at the Center for Tomorrow.

Please visit **cse.buffalo.edu/50** *for more details and to register. I'm looking forward to seeing you very soon!*

Yours,



Chunming Qiao, PhD, IEEE Fellow
SUNY Distinguished Professor and Chair
You can contact Dr. Qiao at **qiao@buffalo.edu**

[STUDENT AWARDS]

The team (*left-to-right*). Back row: **Anthony Siracuse**, **Stephen James**, **David Murray**. Middle row: **Peter Fowler**, **Nick Brase**, **Michael Siracuse**, **Aaron Fiebelkorn**. Front row: **Stefan Jagroop**, **James Droste**, **Jered Geist**.

CSE STUDENTS SHINE AT CYBERDEFENSE CONTEST

Three CSE students were part of a nine-member UB team to win third place in the Northeast Collegiate Cyberdefense Competition, a cybersecurity challenge held in March at the Rochester Institute of Technology.

At the competition, the teams posed as system administrators and security operations experts for a fictitious interactive fantasy baseball startup. The teams had to defend their computer networks from professional penetration testers who attempted to scan, infiltrate and capture files from their network.

"I'm proud of how we performed," said team captain and CSE student **James Droste** of Nanuet, New York. "We met weekly to practice, and it definitely paid off."

Additional CSE students on the team include **Nick Brase** of Hope Mills, North Carolina, and **Stephen James** of the Bronx.

The team operated under the guidance of UB's Center of Excellence in Information Systems Assurance Research and Education (CEISARE), which is directed by CSE's **Shambhu Upadhyaya**.

[FROM **CHAIR** PAGE 1]

ties on network protocols and architectures, and the inventor of optical burst switching.

He also has been at the forefront of pioneering research on integrated wireless systems that have revolutionized the smartphone industry and profoundly impacted the communication infrastructure of the internet, as well as that of video, multimedia and high-end digital services.

Qiao joins fellow CSE faculty members — **Venu Govindaraju**, **Aidong Zhang**, **Hari Srihari** — as SUNY Distinguished Professors.

[FROM **VOICE HACKING** PAGE 1]

To stop voice hacking, the app uses the phone's trajectory mapping algorithm to measure the distance between the speaker and the phone. It requires a phone user to be close to the phone when speaking to guarantee that anyone using a replay of a voice over a mechanical speaker is close enough that the magnetic field can be detected.

Finally, the system requires that the phone be moving — swung in front of the mouth — when the voice recognition is being used. When a replayed voice is moved, the magnetic field changes and the phone can detect this.

Co-authors of the study include Ren's former PhD student **Si Chen** (now an assistant professor at West Chester University of Pennsylvania), current PhD candidate in Ren's lab **Sixu Piao**, and CSE faculty members **Lu Su** and **Aziz Mohaisen**.

[AWARDS]

FACULTY AWARDS

Jinhui Xu, an internationally renowned scholar in computational geometry, has been awarded the 2017 SUNY Chancellor's Award for Excellence.

The Chancellor's Awards acknowledge "the best of our best," said SUNY Chancellor Nancy Zimpher.

Computational geometry has had a profound impact beyond engineering to include disciplines ranging from medicine and biology to networking and very-large-scale integration (VLSI).

Xu has developed general techniques for a number of important problems in his field, among them a technique called "Peeling-and-Enclosing" that solves a large class of constrained clustering problems in the areas of machine learning and information security. He also is highly regarded for his seminal work on several networking problems related to scheduling, routing and security.

Xu is considered a pioneer in using geometric techniques to solve important medical problems, designing a number of novel geometric optimization techniques for solving key treatment-planning problems in radiation cancer therapy, cardiovascular and endovascular intervention, segmentation, and projection and multi-view imaging.

Kui Ren received the 2017 Communications & Information Security Technical Committee (CISTC) Technical Recognition Award from the Institute of Electrical and Electronics Engineers (IEEE).

Ren, who was named an IEEE Fellow in 2016, was recognized for his "outstanding contributions to cloud security and wireless security."

Given annually, the CISTC Technical Recognition Award aims to promote research and development in communications and information systems security by recognizing IEEE Communications Society members who have made outstanding contributions to the technological advancement of security.

"This award confirms that Kui is an internationally recognized leader in cloud and wireless security. I'm very proud to have him as a colleague," said CSE chair **Chunming Qiao**.

Ren, who joined UB in 2012, is the director of the university's Ubiquitous Security and Privacy Research Laboratory (UbiSeC Lab), which carries out research in data and computation outsourcing security in the context of cloud computing, wireless systems security in the context of internet of things, and crowdsourcing-based large-scale data acquisition.

CSE's **Karthik Dantu** was one of four faculty members in the School of Engineering and Applied Sciences to win the 2017 Collegiate Science and Technology Entry Program (CSTEP) mentorship award.

The award honors outstanding CSTEP research mentors who have mentored, supervised and advised undergraduate researchers, and have impacted students' academic and professional careers.

It also recognizes faculty members who support CSTEP's mission to increase the success of underrepresented populations pursuing science, technology, engineering and mathematics (STEM) careers.

CSTEP is a grant-funded program sponsored by the New York State Department of Education.

STUDENT AWARD

Mike Brown, a CSE undergrad, is one of 25 UB students named WNY Prosperity Fellows for 2017-2018.

The fellowships are awarded to college and graduate students with an entrepreneurial drive who want to make a difference in Western New York. Each fellow is awarded $25,000 in scholarship and internship support for an academic year, based on their financial need.

Born and raised in Buffalo, Brown is a rising junior majoring in computer science and political science, with a minor in environmental design.

He has a passion for public service and an interest in using technology to innovate within the public and nonprofit sectors to promote civic engagement and make services more efficient and accessible. He and teammate **Morgan Sansbury** created WaterWatcher, a text message-based water quality data system that was a finalist in the Erie Hack competition.

Brown plans to pursue a master's degree in public administration and looks forward to dedicating his career to serving the Buffalo community.

"The Prosperity Fellows are among the best and the brightest students UB has to offer. With their entrepreneurial spirit and intellectual curiosity, these young men and women will be integral to Western New York's economic future and success," said **A. Scott Weber**, UB's vice president for student life.

UB's fellows also receive $1,000 through an enrichment fund to enhance their fellowship year and further support their professional and personal growth.

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Department of Computer Science and Engineering
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[EVENTS]

Driverless car demo spotlights transportation conference

Top: New York Lt. Gov **Kathy Hochul** takes a spin in the autonomous Cadillac SUV with Carnegie Mellon professor **Raj Rajkumar**, right, in the driver's seat. Above: UB Provost **Charles F. Zukoski** addresses a crowd in the Center for Tomorrow parking lot with **Hochul** and CSE chair **Chunming Qiao** looking on.

EVENT SHOWCASES LEADERSHIP ROLE CSE IS PLAYING IN NEXT-GENERATION TRAFFIC SYSTEMS

More than 100 transportation leaders from across the United States met in June in Buffalo for the Council of the University Transportation Centers annual summer meeting. They discussed everything from driverless cars to bike share programs and how big data can improve traffic-clogged roads.

The event included road testing of an autonomous Cadillac SUV developed by Carnegie Mellon University. CMU is part of a grant that CSE's **Chunming Qiao** received to develop a one-of-a-kind platform for autonomous vehicle testing.

"This is an exciting moment for Western New York and the University at Buffalo, which will now become even more of a leader in the driverless technology revolution," said New York Lieutenant Governor **Kathy Hochul**, who attended the conference.

CSE IS CELEBRATING ITS 50th ANNIVERSARY!

CSE50
1967-2017

[SEPT. 28 – OCT. 1, 2017]

We are planning events that will highlight 50 years of excellence at CSE, and we want you join us. For more info visit:

cse.buffalo.edu/50

ATTN: CSE ALUMNI

We want to hear from you! Keep us updated on your personal and professional lives. Visit: **bit.ly/28lqakd** and complete the **"STAY IN TOUCH"** survey.

Also, feel free to send news, photos, videos, awards, achievements and other related content to **cse-dept@buffalo.edu** or

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[SUMMER 2016]
[COMPUTER SCIENCE AND ENGINEERING DEPARTMENT]

CSE LINKS

[FACULTY RESEARCH]

KARTHIK DANTU IS GIVING LASER VISION TO ROBOT BEES

Un-BEE-lievable!

How do you teach robotic insects to see?

By equipping them with tiny laser-powered sensors that act as eyes, enabling the miniature machines to sense the size, shape and distance of approaching objects.

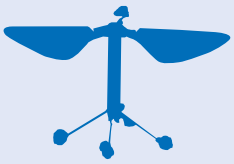
"Essentially, it's the same technology that automakers are using to ensure that driverless cars don't crash into things," says **Karthik Dantu**, an assistant professor who joined CSE in 2013. "Only we need to shrink that technology so it works on robot bees that are no bigger than a penny."

The UB-led research project is an offshoot of the RoboBee initiative, led by Harvard and Northeastern universities, which aims to create insect-inspired robots.

Currently, the bees are capable of tethered flight. But they lack depth perception. To address this, Dantu is equipping the bees with laser-based

[CONTINUE **ROBOBEES** PAGE 2]

How Might We Use These Mini Machines?



ACTUAL SIZE **3cm**

1. **AGRICULTURE**
   Imagine a swarm pollinating crops.
2. **SEARCH-AND-RESCUE**
   They could help find people during mudslides and other disasters.
3. **INSPECTION**
   They could be used to examine bridges and other hard to reach places.

"The technology could have so many uses, which have the potential to help so many people in need."

– Karthik Dantu, assistant professor

[FACULTY NEWS]

Govindaraju named VP for research and economic development

Longtime CSE faculty member **Venu Govindaraju** was named vice president for research and economic development at the University at Buffalo.

A SUNY Distinguished Professor of Computer Science and Engineering, Govindaraju's appointment was announced in January by UB President Satish K. Tripathi and Provost Charles F. Zukoski.

"An internationally renowned expert in machine learning, pattern recognition and biometrics who has made transformative contributions to his field at a global level, Dr. Govindaraju

[CONTINUE **VP** PAGE 2]

[STUDENT NEWS]

Ready. Aim. Fire!

CSE STUDENTS ENERGIZE YOUNGSTERS WITH FUN STEM EVENT

You can tell kids that science and engineering is cool. Or you can show them.

A team of CSE students opted for latter, bringing a tennis ball shooting-cannon in April to Alden Middle School, where dozens of budding scientists learned basic scientific principles in a fun and engaging way.

"We wanted to use our class project to create something that could teach the youngsters basic science concepts in a fun and interesting way," said CSE student **Jacob Rutkowski**.

He was joined by fellow CSE students **Ivaylo Parankinov** and **Zhen Rong Huang**, who helped the middle school-

[CONTINUE **SCHINDLER** PAGE 2]

From left, CSE students: **Jacob Rutowski**, **Bao Xu**, **Ivaylo Parankinov**, **Kris Schindler** (faculty advisor), **Joseph Morrello** and **William Clark**.

[VOICES]

A Message from the Department Chair

Greetings alumni and friends,

The rise of the centrality of computing makes this an exciting time for all of us working in the field of computer science and engineering.

At CSE@UB, we are experiencing tremendous growth. As you may know, we were one of the early departments in the nation to establish a degree program in computer science, and we are very proud of our outstanding alumni in computer science and computer engineering (from the previous CS and ECE departments to the current CSE department). For those of you who haven't visited UB lately, we now work in the new $75 million Davis Hall, located where the trailers used to be. Next year will mark the department's 50th anniversary.

It is thus my great pleasure to bring you this edition of CSE Links, which spotlights the outstanding work our faculty, staff, students and alumni are engaged in. You'll also see some new faces. Please send us news about you and our alumni and we will be happy to include them in future editions (see Page 4 for contact information).

We are planning a multi-event 50th anniversary celebration. Activities will include a yearlong Distinguished Speaker Series from fall 2016 to fall 2017; a special commencement event for our "Gold" graduates in 2017; and the main gala from Sept. 28-Oct. 1, 2017. Please keep your calendar open for the gala. I personally invite each of you to join us as we carry on CSE's tradition of excellent scholarship and education. Also, if you have ideas and suggestions related to the celebration activities, or want to volunteer to help, please let us know.

As always, your support of CSE@UB is highly appreciated. Let us work together to strengthen the research and education programs, and improve the reputation and ranking, which will be beneficial to all of us.

Yours,

Chunming Qiao, PhD, IEEE Fellow
Professor and Chair
You can contact Dr. Qiao at **qiao@buffalo.edu**

[FACES]

WELCOME TO OUR NEW FACULTY AND STAFF

Marco GABOARDI
Assistant Professor
PhD, University of Torino and National Polytechnic Institute of Lorraine
Hobbies: Hiking, bicycling, travelling

Jesse HARTLOFF
Teaching Assistant Professor
PhD, University at Buffalo
Hobbies: Professional firework shooter, home brewing beer

Shi LI
Assistant Professor
PhD, Princeton University
Hobby: Visiting parks, zoos and attractions with family

Jackie MARTEK
Staff Assistant
MS, SUNY Buffalo State College
Hobbies: Reading, running

Aziz MOHAISEN
Assistant Professor
PhD, University of Minnesota
Hobby: Long-distance running

Edward SOBCZAK
Lead programmer/analyst
MA, University at Buffalo
Hobby: Playing the cello

[FROM **SCHINDLER** PAGE 1]

ers operate the cannon, and by **Joseph Morrello** and **William Clark**, who served on safety patrol, collecting the fired tennis balls and keeping the crowd away from the target.

All five said that they were influenced by a teacher or other adult while in grade school and wanted to pay it forward for the next generation. They teamed up on the project as part of their computer engineering capstone design course, taught by **Kris Schindler**, teaching assistant professor in CSE.

[FROM **VP** PAGE 1]

has brought tremendous expertise to this position...," Tripathi said.

Govindaraju, who had served in the position on an interim bases since September 2014, has been the principal investigator or co-principal investigator on more than $65 million in research funding. His work focuses on the application of machine learning and pattern recognition.

"Venu is an innovative scholar with an ambitious vision for UB's research enterprise," Zukoski said. "UB is fortunate to have an individual of such capacity in this important position."

A graduate of the Indian Institute of Technology in Kharagpur, India, Govindaraju received master's and doctoral degrees in computer science from UB.

[FROM **ROBOBEES** PAGE 1]

surveying technology called lidar. These systems are typically the size of a camping lantern. Dantu wants to make them much smaller.

To do so, he is creating novel perception and navigation algorithms that enable the bee to process and map the world around it. Meanwhile, University of Florida researchers are building tiny sensors for the bees. Harvard researchers will then incorporate the technology into the robots.

Dantu's work—reported on by Smithsonian Magazine, NBC News, IEEE Spectrum and dozens of other news outlets—may eventually be used in wearable technology, endoscopic tools, smartphones, tablets and other mobile devices.

[EVENTS]

Kid's Day brings 500 students to Davis Hall

EVENT ALIGNS WITH WHITE HOUSE EFFORTS TO PROMOTE STEM

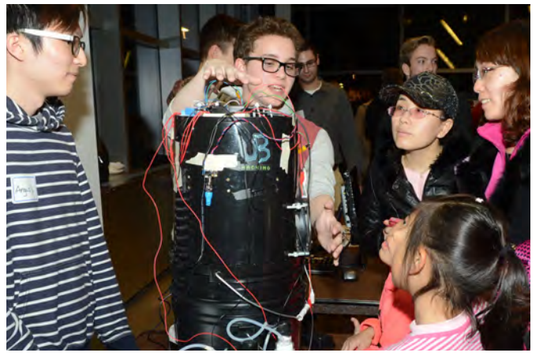
Roughly 500 students and their parents filled Davis Hall on Dec. 11 for a night of fun and games designed to celebrate and promote computer science.

Dubbed "CSE Kid's Day," the CSE event featured robot demos, games designed to teach programming concepts and kid-friendly interactive projects led by UB students.

The most popular spot for families with younger children was the third floor of Davis Hall, where youngsters could program robots to do fun things like follow a line, navigate a maze or dance.

"We got the kids excited by showing them various ways to write code and program a computer. Getting one of our robots to dance to music was very exciting for the kids," said **Bob DeBortoli**, a computer engineering major.

In another activity, kids played games that taught programming and computer science concepts without using a computer. Large squares were taped on the floor, and the children moved around the squares by following a series of prompts to sort numbers in increasing order.



"Getting one of our robots to dance to music was very exciting for the kids!"
– Bob DeBortoli, computer engineering major

"I liked the sorting games because we could participate in them and not just have someone showing it to us. It was a cool way to learn!" said Aditi Arun, a seventh-grader at Transit Middle School.

Kid's Day, which was part of UB's celebration of national Computer Science Education Week, aligns with a White House-sponsored initiative that aims to get more students learning how to code, program, script, design and harness the power of computing to solve new challenges.

"I know that when I was growing up, I had no idea what computer science was all about," said computer science major **Meg Arnold**. "By opening up our department to the community, we can educate kids about computer science and hopefully spark their interest."

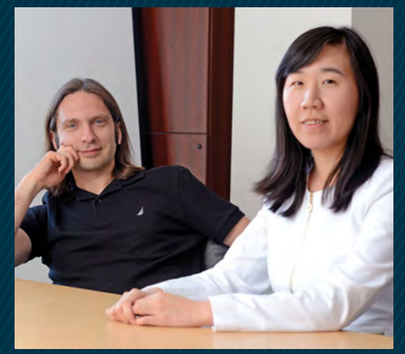
[AWARDS]

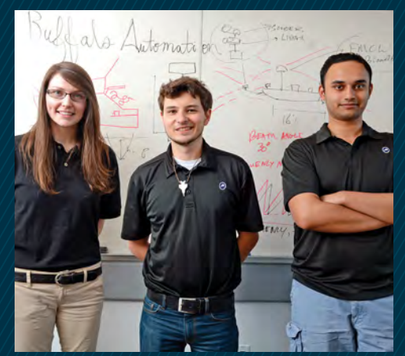
FACULTY AWARDS

Jing Gao, *top right*, an assistant professor who joined CSE in 2012, has been awarded a CAREER grant from the National Science Foundation. The $500,613 award will support her research, which focuses on developing new systems to accurately mine data from mobile devices, social media and other online platforms to provide inexpensive, sustainable and large-scale solutions that improve the efficiency and cost of transportation, health care and other industries.

Dimitrios Koutsonikolas, *top left*, assistant professor who joined CSE in 2011, has been awarded a CAREER grant from the National Science Foundation. The $555,385 award will support his research, which focuses on developing next generation WiFi and cellular networks that aim to solve wireless traffic jams caused by the growing number of mobile devices and bandwidth-hungry applications.

Marco Gaboardi, assistant professor who joined CSE in 2015, has been awarded a $527,867 grant from the National Science Foundation. The award, part of a larger grant involving researchers at Harvard University, involves creating a collection of tools that allow government agencies, banks, hospitals and other organizations to share valuable data without releasing personal information or other sensitive data.





STUDENT AWARDS

Thiru Vikram, *bottom right*, a former CSE and electrical engineering, is president and CEO of Buffalo Automation Group, a startup company that won UB's Henry A. Panasci Jr. Technology Entrepreneurship Competition in April. The company, which is making autonomous navigation technology for boats, will receive $25,000 and another $27,000 in in-kind services. It also includes SEAS students **Alexander Zhitelzeyf**, *bottom middle,* and **Emile Reynolds**, *bottom left.*

CSE established this year awards to recognize outstanding undergraduate students. Here are the inaugural class:

Leadership/Service award: **Gela Malek Pour** for her efforts to establish a local chapter of Scientista, a national organization that empowers pre-professional women in STEM, at UB.

Entrepreneurship award: **Thiru Vikram** for his work in establishing a promising startup company, Buffalo Automation Group.

Research award (two winners): **Paul Kowalski** for developing algorithms for constructing similarity graphs for massive DNA sequence data. **Vicky Zheng** for developing algorithms to identify a set of short protein sub-sequences for vaccine designs.

University at Buffalo
Department of Computer Science and Engineering
School of Engineering and Applied Sciences

CSE LINKS
338 Davis Hall
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CSE is celebrating its 50th anniversary!

CSE50
1967-2017

Please keep your calendar open:

SEPT. 28–OCT. 1, 2017

We are planning events that will highlight 50 years of excellence at CSE, and we want you join us. More details to come.

[SPOTLIGHT]

VISIT OUR YOUTUBE PAGE TO VIEW THESE TALKS AND MORE!

ALUMNI NEWS

CSE alumnus **Dan Magnuszewski**, *left*, ('05, BS) spoke at Davis Hall on March 29 on what it's like to be an engineer navigating the world of tech startups. Magnuszewski is co-founder and CTO of Buffalo-based ACV Auctions, a dealer to dealer marketplace for used vehicles.

Fellow CSE alumnus **Bob Girardi**, *right*, ('79, BA), president and CEO of Amherst-based SofTrek Corp., also gave a seminar at Davis Hall. He spoke April 19 about agile software development, which is a set of principles in which requirements and solutions evolve through collaboration between self-organizing, cross-functional teams.

[VIEWS]

Nearly 50 years after its founding, CSE is stronger than ever, and our faculty and staff continues to grow. Here, the department poses outside of its home, Barbara and Jack Davis Hall on UB's North Campus.

ATTN: CSE ALUMNI

We want to hear from you! Keep us updated on your personal and professional lives. Visit: **bit.ly/28lqakd** and complete the **"STAY IN TOUCH"** survey.

Also, please send in news, photos, videos, achievements, awards and more to **cse-dept@buffalo.edu**. We will include these items in upcoming newsletters! And don't forget to connect with our social media sites!

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