

UNDERGRADUATE PROGRAM IN

ENGINEERING AND APPLIED SCIENCES



*Your Journey*  
BEGINS HERE.



University at Buffalo

School of Engineering  
and Applied Sciences



# diversity and inclusion



## >> AT UB, YOU'RE JUST AS LIKELY TO FIND STUDENTS PLAYING CRICKET AS YOU ARE FRISBEE.

There is a reason for this: UB is a culturally diverse community with science and engineering students from 65 nations and 30 states in the U.S.

"We play as a team and try to win as a team," said Parth Parikh, a UB alumnus and former president of the UB Cricket Club. "There are no differences made, no matter what our nationality."

Both inside and outside the classroom, UB embraces the principles of inclusion for all people regardless of their race, religion, or country of birth. The goal is to foster a supportive and open environment where your ideas and intellectual passions are free to grow and flourish.

"UB is an international community and a welcoming campus for students, faculty and visitors from across the globe, and is committed to remaining so," UB President Satish K. Tripathi said. <<

UB IS AN INTERNATIONAL COMMUNITY  
WITH A SMALL TOWN FEEL.



UB STUDENTS ARE  
BUILDING BRIDGES... LITERALLY.

# student clubs



## >> THE TASK IS UNNERVING: DESIGN AND BUILD A STEEL BRIDGE THAT IS LIGHT, STRONG AND EASY TO ASSEMBLE. What's more, you're competing against some of the nation's best engineering schools.

Not to worry — UB engineering students are game. The students, members of the American Society of Civil Engineers student chapter, are regulars at the society's national contests.

No matter what your major is, there's a student club (or two) for you at UB. Clubs provide hands-on experience and they're great for networking and leading research projects.

They're also FUN! Take, for example, the Cheme Car Team. These chemical and biological engineering students build a tiny car that's powered solely from a chemical reaction.

Other clubs build souped-up snowmobiles, host all-night hackathons and promote engineering to underrepresented groups. Once a year, all the clubs gather for National Engineers' Week, hosting events like mini-drone races, pumpkin-chucking and — everyone's favorite — Bot Wars! <<





study abroad

SEEING SUSTAINABILITY  
FIRSTHAND IN COSTA RICA.



>> WHO SAYS ENGINEERS DON'T  
STUDY ABROAD?

At UB, you'll have the chance to visit incredible places while earning credits toward graduating.

Take, for example, a recent trip to Costa Rica, where a diverse group of students had what they described as "life-changing" and "eye-opening" experiences visiting one of the world's most sustainable nations.

"Engineering is international. The opportunities you have — engaging with different cultures, experiencing different food, trying things that are uncommon to you — will only make you a better engineer, a better scientist," says John Atkinson, the environmental engineering professor who leads the trip.

Students were on the move, visiting organic farms, a banana plantation, a wind farm, a hydroelectric plant, the rain forest, beaches and more.

"There's nothing like getting out of the classroom and being in a gorgeous place and learning about super-interesting topics," said Kaitlyn Alcazaren, an environmental engineering major whose interested in a career in renewable energy. <<

>> WANT TO SPEND YOUR  
SUMMER AT NASA?

How about an internship with Microsoft?

UB has the resources and connections to help place you at some of the world's most exciting companies and organizations.

Take Mack Ward. He did an internship with Bloomberg's research and development team in Manhattan. He's now a software engineer at Facebook.

Adonis Pimienta-Peñalver arrived at UB from his native Cuba. After completing his bachelor's degree, he interned at NASA, helping the space agency create a solar-powered spacecraft. He just finished his PhD at UB.

Josh VanDeMortel spent his summer working with some of the world's top plant geneticists in nearby Geneva, New York. He cared for and studied disease-resistant apple trees.

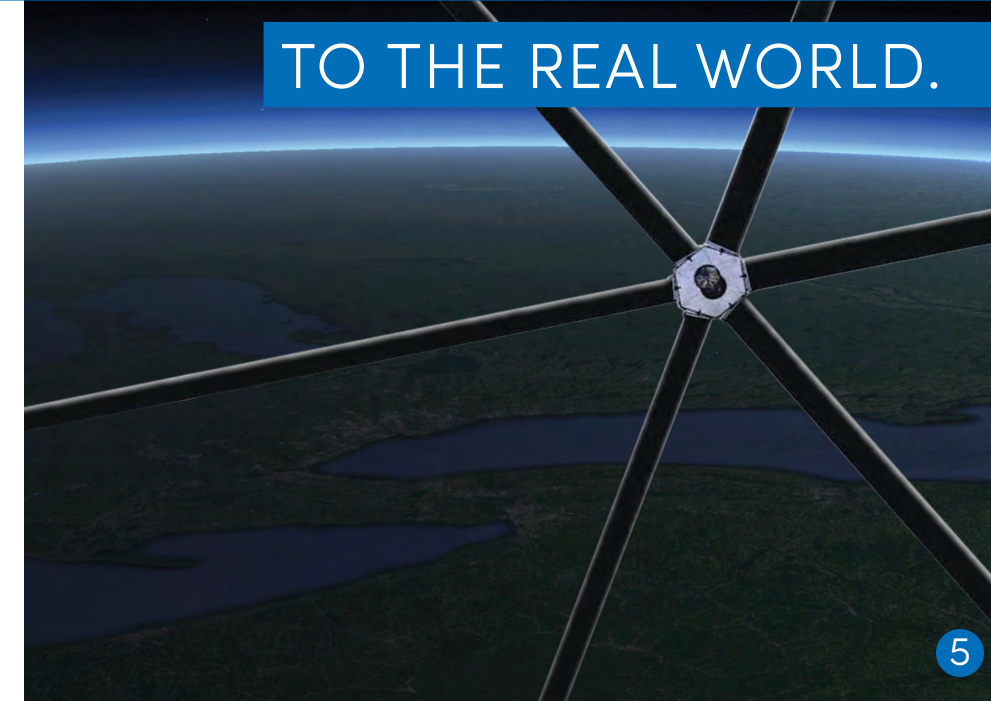
For most undergraduates, the culmination of their work at UB is the Engineering Senior Design Expo, a capstone course where students test their technical thinking and communication skills by presenting posters and discussing prototypes. <<



experiential learning



CONNECTING THE CLASSROOM  
TO THE REAL WORLD.







STUDENTS DON'T JUST SIT IN CLASS, THEY CONTRIBUTE TO GROUNDBREAKING RESEARCH

>> AT UB, RESEARCH ISN'T JUST FOR GRAD STUDENTS. WE ENCOURAGE ALL STUDENTS TO JOIN RESEARCH LABS.

Take, for instance, computer science undergrad Kun Woo Cho. She is helping develop a smartphone app to detect autism spectrum disorder (ASD) in children as young as 2 years old.

The app tracks eye movements of a child looking at pictures of social scenes — for example, those with multiple people. The eye movements of someone with ASD often differ from those of a person without autism.

"Right now it is a prototype. We have to consider if other neurological conditions are included, like ADD, how that will affect the outcome," Cho says.

If successful, the app could improve early diagnosis of autism by giving parents a quick, inexpensive and reliable way to determine if their child needs to see a doctor for ASD. <<

FROM INSPIRING FUTURE ENGINEERS TO CLEANING UP POLLUTED LOCAL WATERWAYS, WE MAKE A DIFFERENCE IN THE COMMUNITY.



>> POP QUIZ: HOW DO UB ENGINEERING STUDENTS MAKE BUFFALO A BETTER PLACE?

- a) By promoting STEM education to schoolchildren.
- b) By sleuthing for pollution sources in local waterways.
- c) By painting crosswalks to make streets safer for pedestrians and cyclists.
- d) All of the above

The answer: **d) All of the above.**

Environmental engineering undergrad Hallie Suk and fellow students recently visited Woodlawn Beach, just outside of Buffalo on the shore of Lake Erie.

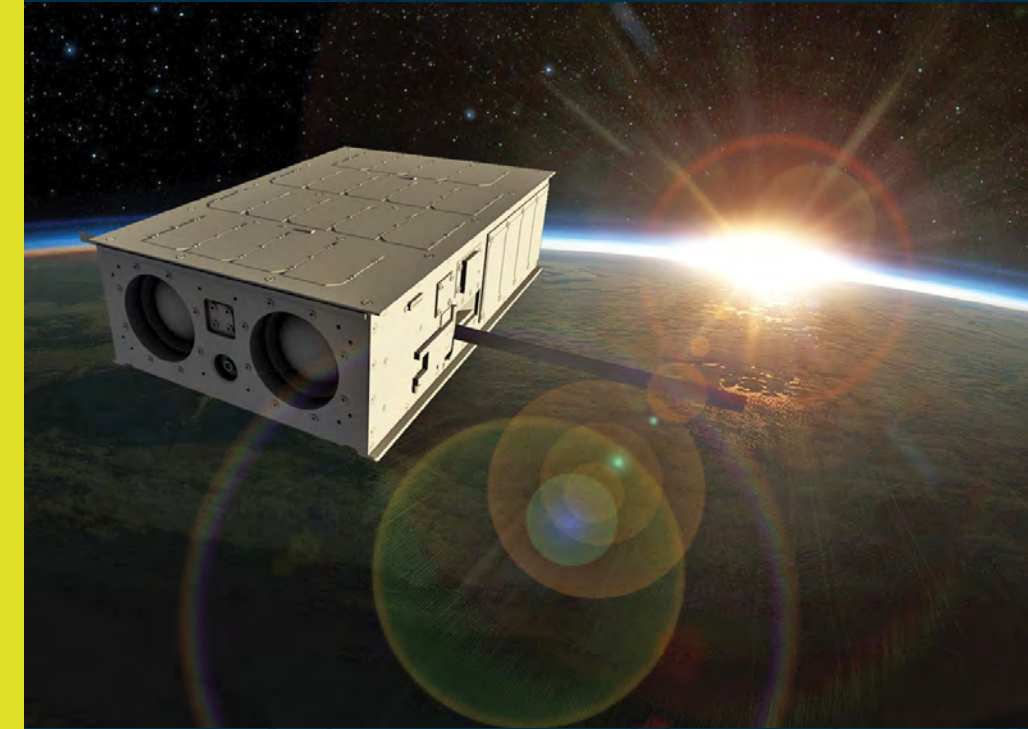
The goal? Find the source of pollution that leads to beach closures.

"To me, sustainability means being able to support the global population without impacting future generations access to resources," Suk said.

Led by professor Lauren Sassoubre, Suk and fellow undergrads are continuing their investigation, with the goal of ultimately making local waterways safer for swimming, fishing and other outdoor pursuits. <<







FROM BUILDING SATELLITES  
TO LAUNCHING ROCKETS,  
UB STUDENTS ARE  
EXPLORING THE UNIVERSE.



>> **RACHEL SUITOR COMES TO SCHOOL ON WEEKENDS.** She's here during winter and summer breaks too.

Sounds crazy, right?

Well, not if you're tasked with helping the U.S. Air Force make outer space safer.

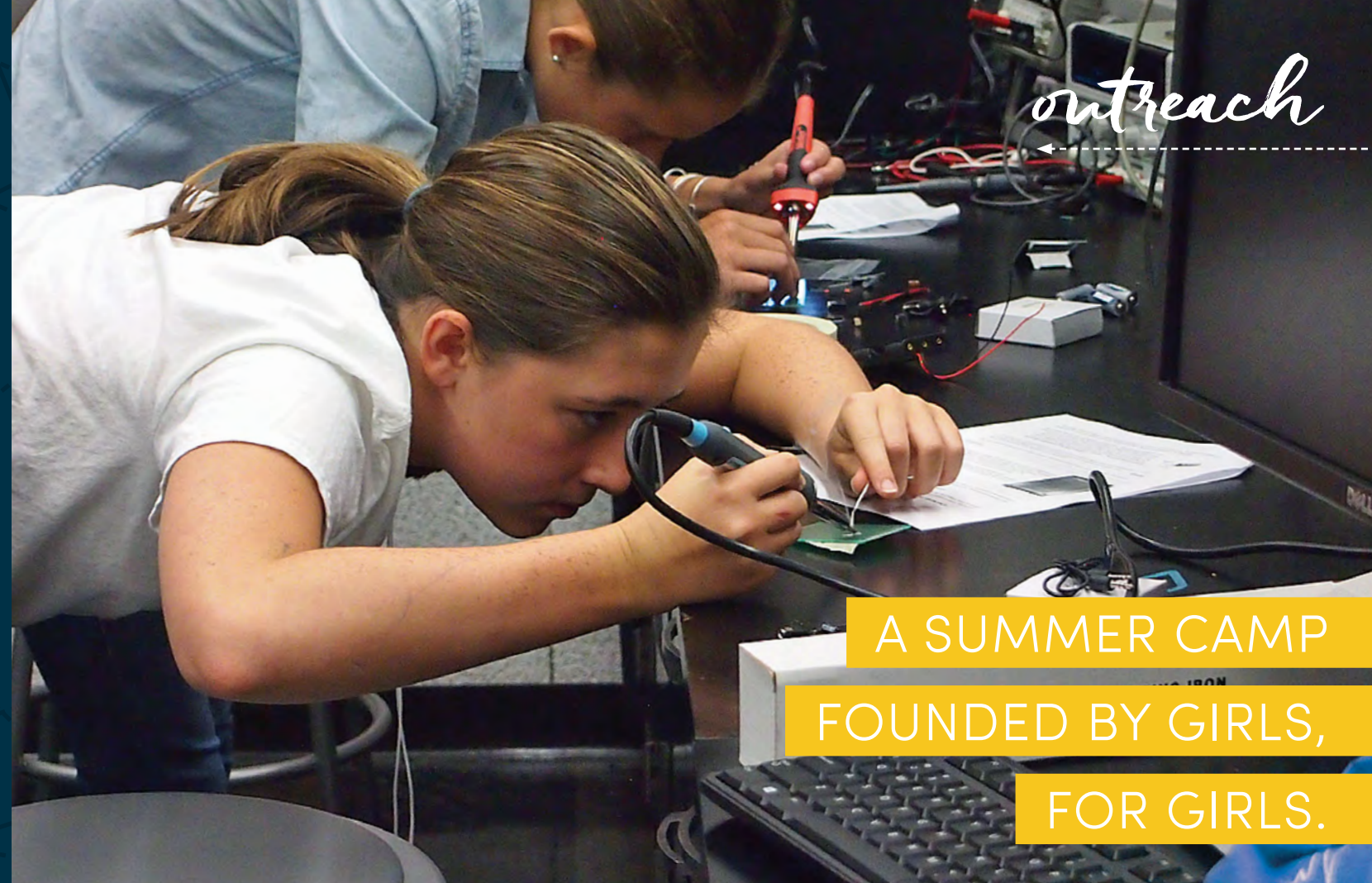
Suitor is one of more than 100 students in UB's Nanosat Lab, which is building a pair of tiny satellites that will orbit Earth monitoring thousands of pieces of space debris that threaten everything from smartphone satellites to the International Space Station.

"The lab is so exciting," says Suitor.

Students are building a third satellite, this one for NASA, that will measure radio waves in low Earth orbit.

Among those to visit the lab? NASA royalty like astronaut twins Mark and Scott Kelly, and former NASA administrator Charles Bolden.

Other space-related projects led by students include rocket launch contests, and building a Mars rover-styled robot that students test every at NASA Johnson Space Center in Texas. <<



A SUMMER CAMP  
FOUNDED BY GIRLS,  
FOR GIRLS.

>> **KATHERINE CZERNIEJEWSKI MAY HAVE GRADUATED, BUT SHE REMAINS CONNECTED TO UB.**

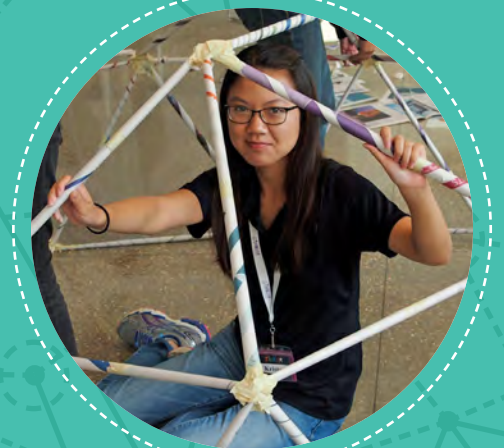
She is one of three co-founders of TINKER, an engineering camp that introduces high girls to engineering while debunking the common misconceptions that prevent women from considering an engineering career.

"Our mission is to allow girls to explore engineering in a fun and safe environment so they can make an educated decision about their future career path," said Czerniejewski, who serves as the president and treasurer of

nonprofit that runs TINKER.

The camp, which runs for a week every summer, is one of numerous outreach programs at UB designed to encourage women and other underrepresented groups to participate in STEM fields.

"We must promote engineering education to those historically underrepresented, provide an experience that's equitable and inclusive, and improve the broader engineering culture to fully engage future generations," said Liesl Folks, dean of the School of Engineering and Applied Sciences. <<





# entrepreneurship



## >> GOT A BUSINESS IDEA? WANT TO LAUNCH A STARTUP? WELL, YOU'RE IN THE RIGHT PLACE.

At UB, we've built an entrepreneurial ecosystem that helps students turn their dreams into reality. From supportive faculty and staff to angel investors and other powerbrokers, UB has all the pieces of the puzzle you'll need to become the next Zuckerberg.

Kevin Carter was a biomedical engineering undergrad when he co-invented technology that would lead to launching POP Biotechnologies. Carter now wears two hats; that of PhD candidate and the biopharmaceutical startup's chief operations officer.

With the help of UB, the company is growing rapidly, having recently inked research agreements with two international pharmaceutical companies. It also attracted the interest of America Online co-founder Steve Case, who along with local investors awarded POP BIO \$100,000 to further its disease-fighting technologies.

"It's extremely challenging to start a new life sciences company, but we're having tremendous success in Buffalo," Carter said. <<



FORGET  
SHARK TANK.  
WE GOT YOU  
COVERED.

## >> WANT TO WORK FOR APPLE, THE FBI OR SOME OTHER EXCITING ORGANIZATION?

We'll make sure you're ready to land that job, everything from coursework and alumni connections to resume critiques and interview prepping.

As undergraduates, you'll follow a comprehensive four-year schedule of activities to enhance your professional development as engineers. We also host career fairs in which hundreds of companies, both local and national, visit campus every year for job fairs.

Alumni return to campus for special sessions too. Recently, two alumni working for Google spoke to nearly 200 students. The alums — Bob Zwolinski and Nisha Chaudhari — conducted mock Google interviews, helping students learn what to expect when they apply for jobs.

"I really learned Java at UB and that prepared me for interviews and has served me well in my career," said Chaudhari, who works at Googleplex, the company's California headquarters. <<



# career development



WE'LL HELP YOU REALIZE  
THE JOB OF YOUR DREAMS.



WELCOME TO UB, A VIBRANT AND  
INCLUSIVE COMMUNITY OF **BIG THINKERS**  
AND EVEN **BIGGER DOERS.**

WE WORK TOGETHER TO QUESTION  
AND UPEND THEORIES. **WE LIFT EACH OTHER UP.**

**WE DRIVE CHANGE.** AMBITION IS A VIRTUE.

TENACITY IS A GIVEN AND

**DISCOVERY HAPPENS EVERYWHERE.**

THAT'S JUST HOW WE DO IT HERE.

[engineering.buffalo.edu](http://engineering.buffalo.edu)

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