

COMPUTE

SPRING/SUMMER 2024



GROUNDBREAKING STUDENTS, GROUNDBREAKING WORKSPACE

Your first look at the new
Price Computing and Engineering Building

INVOLVEMENT AND INNOVATION

Reflecting on three years of UCIC



KAHLERT SCHOOL OF COMPUTING

THE UNIVERSITY OF UTAH



Editorial Board

Rajeev Balasubramonian
Sheri Carp
Chris Coleman
Mary Hall
Ellen Lewis
Erin Parker
John Regehr

The focus of this Spring 2024 issue is the exciting groundbreaking of the John and Marcia Price Computing and Engineering Building. This 252,000-square-foot, 5-story structure will change the atmosphere of our research and education programs, providing modern spaces that foster collaboration and community. Visit page four to see the latest design images from our partners at GSBS+LMN Architects.

Collaboration is a central theme in this issue. We celebrate three years of UCIC, a student success center that promotes belonging and collaboration within the school.

We recognize the five Kahlert faculty and adjunct faculty members among the 16 professors campus-wide awarded the One Utah Data Science Grant, collaborating with fellow researchers to make a campus-wide impact.

We also recognize the community impact of the STEM Community Alliance Program, recently awarded a grant by the Utah Board of Juvenile Justice, so that we can continue our collaboration within the prison system to provide youth in custody with STEM education workshops.

On the heels of our largest graduating class to date completing their commencement and convocation ceremonies, collaboration is at the core of the university experience that prepares our graduates for success as they make an impact in the workforce, in our community, and beyond.

We seek to enhance the spirit of collaboration in our new home once construction is complete. We are so grateful to the Price family, the state of Utah, the university, and friends of the Kahlert School of Computing for their contributions to making this future a reality for us.

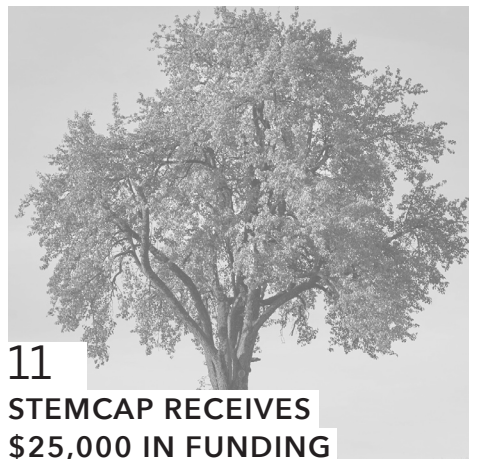
A handwritten signature in blue ink that reads "Mary Hall".

Mary Hall

Director, Kahlert School of Computing



TABLE OF CONTENTS



GROUNDBREAKING STUDENTS, GROUNDBREAKING WORKSPACE

Construction begins on Price Computing and Engineering Building

Construction officially began on Wednesday, May 16, on the Price Computing and Engineering Building.

"Today we mark the beginning of a new era in computing innovation in Utah. The John and Marcia Price Computing and Engineering Building will have a transformative impact on the school, university, community, local industry, the state of Utah, and the computing field," stated Mary Hall.

The 253,000 square foot building with breathtaking views of the mountains is poised to establish the University of Utah as a hub for innovation and excellence in computing in the Intermountain West.

"We envision the new Price Computing and Engineering Building as less of a farm and more of a rainforest," remarked Steve Price. "A rainforest sustains itself, whereas a farm requires consistent tending and cultivation. With these new facilities, we seek to provide all that our students will need to sustain innovation and creativity for generations to come."

The entire second floor will be devoted to undergraduates—where they will meet with teaching assistants, academic advisors, and tutors. Lab classes, a makerspace, and open collaboration spaces will give our students a gathering place that stimulates their creativity.

Modern research facilities, including specialized labs for robotics, human-centered computing, and wireless networking will expand our research capabilities and bring new talent to the university.

A beautiful event space on the fifth floor overlooking both downtown and the Salt Lake Valley and a 400-person auditorium on the first floor will make possible sponsoring conferences and workshops that will regularly bring visitors to our beautiful campus.



Above: Groundbreaking of the Price Computing and Engineering Building. Photo courtesy of Dan Hixson.

INSIDE THE PRICE COMPUTING AND ENGINEERING BUILDING

Get a sneak peak of our new home! This state-of-the-art building will provide space for students and faculty to increase their knowledge of and research in networking, visualization, graphics, data science, machine learning, AI, cybersecurity, fintech and more.



Photos courtesy of GSBS+LMN Architects

CELEBRATING THREE YEARS OF UCIC

Fostering involvement in innovation since 2021



UCIC was launched three years ago as part of a national effort to “create systemic, sustainable change to remove institutional barriers that impact the discovery, retention, and persistence in computing” through funding from Northeastern University’s Center for Inclusive Computing.



The Utah Center for Inclusive Computing (UCIC) has focused on recruiting, retention, and preparation for students from all backgrounds. By addressing the various barriers that students face in pursuing and persisting in undergraduate computing degrees at the U, there has been unprecedented growth in our programs while broadening participation to students from backgrounds that previously were underrepresented in our classrooms. This shift in the student population not only benefits those students but creates a classroom and workplace environment that benefits scientific and technological progress by bringing new perspectives into the field.

What are the sorts of institutional barriers that UCIC and the Kahlert School of Computing have removed in achieving these goals?

A Bridge Program for entering freshmen two weeks before classes start and a Success in CS seminar course for pre-majors increase confidence and assist in building cohorts for new students.

Multiple pathways into the introductory programming sequence offer students new to coding an on-ramp to the major.

Embedded tutors in the early courses assist students who may benefit from additional support to succeed.

Broadening the degree programs, including BS Data Science and BS Software Development, appeals to students with a variety of interests.

A simplified, more transparent process to becoming a computing major eliminates obstacles without lowering standards.



Above: Students gather at a UCIC social event.

“Given how important computing is to job growth in Utah, it is critical that the computing workforce be representative of the people of the state,” remarked Mary Hall, Kahlert School of Computing and UCIC Director.

In acknowledging the necessity of representing the people of our state, UCIC also recognizes that there is not a one-size-fits-all program to best support every talented student in pursuit of a computing degree. As such, UCIC’s approach to creating student resources expands beyond what the average student organization offers.

In the three years since UCIC opened its doors, UCIC has partnered with community leaders such as Sorenson Capital, Lucid Software, and Adobe to help our students land internships, practice technical interview skills, and more to pave their way for career success. UCIC’s Steering Committee includes professionals across corporate and academic spaces with real-world insight into the computing industry.

This past September, Dr. Kazi Sinthia Kabir became UCIC's first Future Faculty Postdoctoral Fellow, and taught an introductory course on object-oriented programming to our undergraduate students.

"I am deeply grateful for the opportunity to contribute to UCIC's mission as a Future Faculty Postdoctoral Fellow," says Dr. Kabir. "It's not only a significant step for my career development but also allows me to delve into the transformative impact of UCIC's initiatives."

"As a part of this postdoctoral training, I have learned a lot about the background work of teaching a computer science class and the different nuances that inform how we can adjust our teaching to appreciate different student's perspectives. The insights I have gathered in the past two semesters made me more committed to tailoring my teaching methods to ensure that every student feels valued and empowered in the classroom."

UCIC and the Kahlert School's interventions help all students and create a welcoming environment that attracts a wider variety of students into our programs. Data shows that with undergraduate degree recipients in the spring of 2023, not only has enrollment and number of students grown rapidly, but the percentage of women degree recipients reached its highest percentage in nearly 20 years. The percentage of women majors has risen from 15% to 19% under UCIC.

"The technology workforce—especially computer scientists—are at the forefront of solving some of the world's most pressing challenges our world faces, and we need women to be part of creating those solutions," said Cydni Tetro, president of Women Tech Council and member of the UCIC Steering Committee. "With focus and unity from all areas of our community, including the work UCIC is doing, we can together help bring more of the women we need into technology and computer science."



Left: Mary Hall presents on behalf of UCIC at Club Ability's "Triunfa en tecnologica". Photo courtesy of Juliette Bautista.

Right: Student ambassadors represent the student success center in UCIC t-shirts.

UCIC has paved the way for new degree programs, and the added breadth has resulted in a broader audience for our programs. Since launching, the two-semester Introduction to Computer Programming course now hosts a more extensive demographic of students in the first semester than previously recorded.

As the composition of our student body changes to reflect our community, UCIC has gone into local communities to encourage future students to enter the CS field.

UCIC ambassadors have presented at SheTech Explorer Day, a program through the Women Tech Council educating girls from 9th to 12th grade on the future of tech.

In January 2023, Mary Hall presented on behalf of UCIC at the "Triunfa en tecnologia" event hosted by Club Ability, a local program designed to encourage our Spanish-speaking population to participate in STEM programs.

The ability to connect with future STEM students extends the mission of belonging and involvement beyond the university campus, preparing the next generation to join the field and welcoming them with open arms.

*Help us continue to reach UCIC's goals after our grant funding ends this year by donating to the Center. Contact **Sheri Carp** at sheri@cs.utah.edu.*

ROSS WHITAKER RETIRES



Ross Whitaker

Professor, former Director of the Kahlert School of Computing

After 24 years at the University of Utah, including six as Director of the Kahlert School of Computing, Professor Ross Whitaker will be retiring this summer.

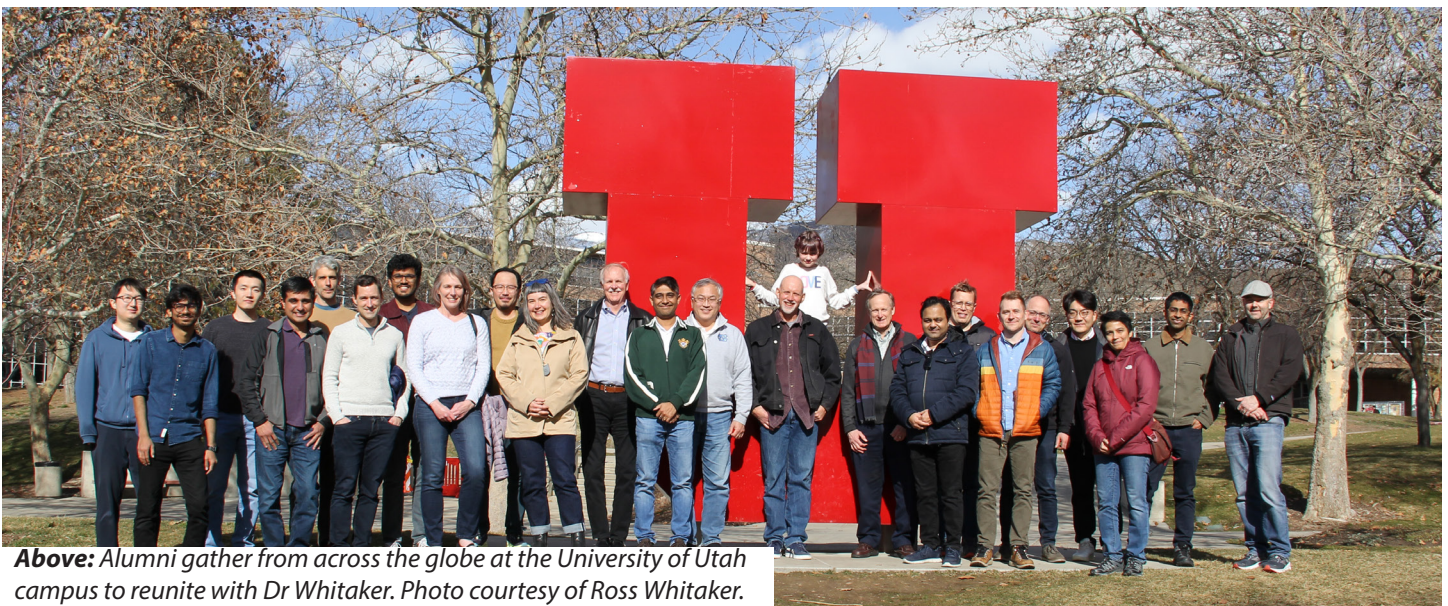
Professor Whitaker graduated Summa Cum Laude from Princeton University in 1986 with a degree in Electrical Engineering and Computer Science. After spending two years with the Boston Consulting Group, he enrolled in the University of North Carolina at Chapel Hill, and completed his PhD in Computer Science in 1994, while earning the Alumni Scholarship Award.

Professor Whitaker came to the Kahlert School of Computing and the Scientific Computing and Imaging Institute in 2000, following stints at the European Computer-Industry Research Center in Munich, Germany and at the University of Tennessee, where he received an NSF Career Award. He has taught undergraduate classes in Java programming, discrete mathematics, computational geometry, and probability/statistics, and graduate level classes in scientific visualization, and image processing.

2014 was a key year in Professor Whitaker's time at the University. Not only was he named an Institute of Electrical and Electronics Engineers Fellow, but he also began his tenure as Director of the Kahlert School of Computing. He was honored again in 2017 as an American Institute for Medical and Biological Engineering Fellow.

Despite being a decorated member of the engineering and computing community, his proudest achievement is the time he has spent as a mentor to approximately 20 PhD students here at the U. "As a mentor, you spend hours over years one on one with these students and foster a close relationship," Professor Whitaker remarked. "You develop an immense sense of pride as you witness them develop in their education and careers." His former students traveled across continents this past fall to return to the University campus and reunite with him, pictured below.

While the opportunity to reconnect with these students serves as an ideal bookend to Professor Whitaker's time with the University of Utah, he is not slowing down anytime soon. He plans to continue consulting with small companies in the industry, whenever he isn't mountain biking, hiking, or taking part in outdoor adventures across our beautiful state.



Above: Alumni gather from across the globe at the University of Utah campus to reunite with Dr Whitaker. Photo courtesy of Ross Whitaker.

FACULTY AND STUDENT NEWS

FACULTY NEWS



Professor **Blair D. Sullivan** has been chosen to be part of a permanent tribute to the impact of women from Georgia Tech. The “Pathway of Progress” celebrates 70 alumnae, as well as 98 women and events with historical significance to the school. The installation is composed of hundreds of hexagonal mosaics that will tell the stories of women who graduated from Georgia Tech, forming a collective constellation across the campus tree line.



The Computing Research Association (CRA) has selected Presidential Professor **Manish Parashar** as the recipient of the 2024 CRA Distinguished Service Award in recognition of his multifaceted and highly impactful service to the computing research community.



The NSF is investing \$7 million to expand advanced wireless testing capabilities, propelling the O-RAN ecosystem innovation and growth. The O-RAN Software Community (OSC), a collaboration between the O-RAN ALLIANCE and Linux Foundation, is using the POWDER platform at the University of Utah for automated testing of the various OSC software components, run by Jay Lepreau Professor of Computing **Kobus Van der Merwe**.



Assistant Professor **Alan Kuntz** was recognized with the Outstanding Teacher Award for the 2023-2024 academic year. He was nominated by the student body for his enthusiasm in teaching and making his classes accessible for everyone to learn and understand. One student nomination stated, “He is a uniquely gifted teacher and you can tell that he has a passion for helping students learn.”



STUDENT NEWS

Ph.D. candidate **Sachin Kumar Singh** presented a paper at the 21st annual NSDI Symposium in Santa Clara, California. The paper was co-written with fellow students **Shreeman Gautam** and **Cameron Cartier**, as well as Professors **Robert Ricci** and **Sameer Patil**.



Computer Science undergraduates **Emily Best** and **Isabella Bertagnolli** received the Outstanding Graduating Computer Science Senior Award for the 2023-2024 academic year for their academic excellence as well as leadership and campus outreach involvement.



Computer Science and Applied Mathematics B.S. student and Teaching Assistant **Hung Phan Quoc Viet** received the Outstanding Teaching Assistant award for the 2023-2024 academic year. Hung was nominated for excellence in assisting students in the CS 2420 Data Structure and Algorithms class, as well as the CS 1400 Introduction to Computer Programming class.



Charles Bruce Musgrave
Dean of Engineering

MEET THE NEW DEAN

Charles Bruce Musgrave joins the John and Marcia Price College of Engineering this summer

University of Utah Provost Mitzi M. Montoya announced that Charles Bruce Musgrave has accepted an offer to serve as Dean of the John and Marcia Price College of Engineering. Musgrave is a Professor of Chemical and Biochemical Engineering and Associate Dean for Graduate Education over the College of Engineering and Applied Science at the University of Colorado at Boulder. He will begin his new role on July 1, 2024.

While at the University of Colorado, Musgrave served as Chair of the Department of Chemical and Biological Engineering, with a joint appointment at the National Renewable Energy Laboratory with the Department of Energy in Golden, Colorado. He is a fellow of the Materials Science and Engineering Program and Renewable and Sustainable Energy Institute at the University of Colorado. Before his nearly 16 years in Colorado, Musgrave served as an Assistant Professor of Chemical Engineering at Stanford University, and as a Visiting Professor of Chemistry and Chemical Biology at Harvard University. He was a collaborator with Intel Corporation, SC Solutions Corporation, General Motors Corporation and Xerox Corporation, among others. Along with his notable achievements, Musgrave brings a unique perspective to his leadership role as a first-generation student and son of an immigrant.

"The John and Marcia Price College of Engineering has a rich heritage of making history through its innovative research by forging paths into the unknown and inventing the future," Montoya said. "I am excited to work with Dr. Musgrave as he leads this prestigious college in teaching our next generation of engineers and problem-solvers who will impact our world for the better."

Musgrave will lead the Price College of Engineering in its mission to prepare students to be leaders in academia, industry and government; improve the health, safety and enjoyment of human life through research; and stimulate and grow the economy by providing qualified professionals and transferring technologies to the private sector. The College is among the top 40 engineering colleges in the country for research productivity and aims to continue its rapidly growing contributions to research and innovation.

"I've always been captivated by the challenge of anticipating technological trends and the need to align research and education with the ever-changing technology landscape," Musgrave said. "I am thrilled to lead the Price College of Engineering as it defines the forefront of emerging technologies while proactively engaging the University's and community's extraordinary talent in identifying new opportunities and fostering an environment that prepares our students to thrive in a future of accelerating innovation."

Modified from an article by University of Utah Communications originally published in the @theU Newsletter

2024 ONE UTAH DATA SCIENCE HUB SEED GRANTS ANNOUNCED

The annual One Utah Data Science Hub seed grants benefit interdisciplinary research projects across the University that creatively harness data to find innovative solutions, and this year the Kahlert School of Computing is making a campus-wide impact.

Of the seven projects and 16 faculty members awarded during this year's round of SEED grants, Kahlert School of Computing faculty and adjunct faculty accounted for five of the faculty recipients across 4 projects, including **Anna Fariha**, PhD; **Prashant Pandey**, PhD; and adjunct faculty members **Nina de Lacy**, MD; **Jeanine Steafnucci**, PhD; and **Tolga Tasdizen**, PhD.



Anna Fariha



Prashant Pandey



Nina de Lacy



Jeanine Stefanucci



Tolga Tasdizen

STEMCAP RECEIVES \$25,000 IN FUNDING

The STEM Community Alliance Program (STEMCAP) has recently received \$25,000 in funding from the Utah Board of Juvenile Justice. Assistant Professor, Lecturer **Aaron Wood** is a collaborator on the proposal, which will foster exchange in unique outreach opportunities between youth in custody and STEM communities.



Aaron Wood



GRAD VISIT WEEKEND

This February, the largest group of prospective Kahlert School of Computing graduate students thus far made the trek out to the Wasatch Front to meet their cohort and faculty, learn more about our program offerings, and explore all that Salt Lake has to offer from epicure experiences to escape rooms.



Photos courtesy of Allen Hill





STUDENT SPOTLIGHT

Q&A with Emily Best, BS in Computer Science and Outstanding Graduating Computer Science Senior Award co-recipient

What program are you in, and what year will you finish?

I'm an undergraduate studying Computer Science. I graduate in May 2024!

How did you become interested in computer science?

When I started at the U, I was interested in engineering but was not sure which major to pursue. I took the Survey of Engineering class my first semester and really liked the computer science puzzles we solved. More than the fun puzzles, I was impressed by the large impact of computer science in today's world.

Access to computers and strong programs makes a difference in daily life for people around the globe. I like that in this field, I have the potential to reach people of various walks of life and help them connect to information and opportunities they otherwise would not have.

What interested you in pursuing this degree at the U?

Although I grew up in Bothell, Washington, I was born in Salt Lake and still have family in the area. I visited the U during a family trip in high school and loved it! I liked the open space on campus and was happy to see students walking around together and hanging out on campus.

I didn't come to the U planning to study computer science, but I'm so grateful this is where I earned my degree. Our faculty members are incredible—knowledgeable, supportive, and diligent. Classes have thoughtful structures and give students a strong introduction to fundamental principles and other areas of interest in the field.

With lots of resources to answer questions—professors, TAs, Piazza, advisors, classmates—I have better understood class principles, navigated school and career decisions, and learned about new opportunities. Computer science is a difficult major, and I'm proud of our department's efforts to support students that reach out for help.

How will you use your degree in the future?

After graduation, I'll start working at Google! I have interned with them for the past couple of summers and I'm excited to return as a software engineer. I'm still motivated by the potential I saw in my freshman year to help people connect to information and opportunities through computer science.

Google's mission is similar to my personal mission, and I'm excited to see the projects I find. I want to keep seeking opportunities to help meet needs and lead efforts to make a positive difference.

What is your favorite class in the program?

I have liked different things in all my classes, but my current favorites are the Senior Capstone courses. Senior Capstone Design and Senior Capstone Project are taken in the penultimate and final semesters of the computer science undergraduate program. In the first semester, students form teams of 4-5 and design a Capstone project. They start prototyping the project halfway through the first semester and continue developing it through the next semester.

Both courses have been so fun! They follow what I'm excited about in working as a software engineer. I'm on a team with my best friends in the program who have studied and pair-programmed with me throughout our years in college. We're working on a project that we designed and are all excited about.

We identified a need, researched and spoke with stakeholders to better understand its space, and are working together to build an app that helps meet this need. In industry, I'm excited to explore, understand, and build solutions to problems, and Capstone has let me experience that with my friends.



Is there a specific mentor, club, or program that made a difference in your experience here at the Kahlert School of Computing?

So many! In my pre-requisite courses, my TAs were great mentors that I looked up to, and I'm still in contact with a few of them. They included me in starting up our Women in Computing club which introduced me to more students, professors, and local companies. They also encouraged me to apply for internship programs for beginning computer science students and helped me prepare for their interviews after I applied. I landed my first internship at Facebook after that school year!

My professors have also been supportive mentors. Besides asking them questions about course material, I have also gone to several of my professors for advice on my career and education, and ideas about supporting our students. In particular, Dr. Erin Parker has been a wonderful mentor and has encouraged me in opportunities to be a student leader in our department. Our faculty does a lot for our students, and they keep striving to improve.



STUDENT SPOTLIGHT

Q&A with Jakob Johnson, PhD in Computing

What program are you in, and what year will you finish?

I'm working towards a PhD in Computing, focusing on Image Processing. My work is on uncertainty quantification, which lets us know when the machine learning model doesn't know what it's talking about. It's a part of machine learning safety. I hope to graduate in the fall of 2025.

What interested you in pursuing this degree?

My ultimate goal is to teach, to be a professor, so a PhD is the next step towards that, but I have really enjoyed doing research. I come from a math & stats bachelor's degree, but there's not a whole lot of jobs for pure mathematicians nowadays.

I was interested in the practical applications of the stats and linear algebra I was learning so data science was a perfect fit. It has plenty of interesting active research questions and is just really interesting and fun in general.

I like taking pictures and think in a very "visual" way, so image processing and computer vision are a good fit for me. I think it's really cool to work on the "eyes" of a computer, thinking about how it "sees" what we show it and how it processes that. It's a topic that's got lots of potential and is growing really fast, I'm excited to be a part of that.

How did you choose the University of Utah?

I grew up in the mountains and really wanted to stay in the Rocky Mountain region. The U of U has the strongest computer science program here, and with all the investment into AI and ML, it will only get better. Plus it's got plenty of extra-curricular recreation opportunities I'm into like skiing and hiking.

What is your favorite class in the program?

My favorite class was either Probabilistic Machine Learning or Local Explanations for Deep Learning, a course about explainability in Large Language Models. Both classes taught me new ways of thinking about problems, techniques, and methods I'd been using in my research. They were both really hard—especially Prob ML—but I love being challenged like that, and it really helped push my understanding and work in math and ML. An honorable mention is Operating Systems. I chose the course to fill an elective and take a course with some friends even though I had very little low-level programming experience (I am a math major, remember). I barely survived that course, but it completely blew my mind and changed how I think about how computers run and how we use them.

“

After getting burned out during the COVID lockdown, I've prioritized maintaining a work-life balance with my research and coursework.

Taking time off might've hurt my research progress a bit, but also I've come up with some of my best ideas while cruising down a ski slope or hiking up a mountain. I think it's made me enjoy my time here more which is most important to me.

”



Is there a specific mentor, club, or program that made a difference in your experience here at the Kahlert School of Computing?

I want to thank my advisor of course, Tolga Tasdizen, for his help and guidance but a group that's really had a huge impact on my time here has been GradSAC. I've had the privilege of leading them for a few years, and it's been really great working alongside so many hard-working and motivated fellow grad students. I'm really proud of all the activities and events we've organized—it's been an incredibly positive experience during grad school.

How will you use your degree in the future?

I plan to head to industry research or a national lab to get some real-world experience in the computer science industry before returning to academia. I'd really like to end up back at a university—I love their learning atmosphere and want to be a part of that but I feel that seeing how CS exists in the real world would help me become a better teacher and mentor.

COMPUTE

Kahlert School of Computing
University of Utah
50 S. Central Campus Drive RM 3190
Salt Lake City, UT 84112-9200



KAHLERT SCHOOL OF COMPUTING

THE UNIVERSITY OF UTAH

FOLLOW US:



cs.utah.edu



linkedin.com/company/KahlertSoC



facebook.com/KahlertSoC



[@KahlertSoC](https://instagram.com/KahlertSoC)

