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## From the Chair: Department Hosts 50<sup>th</sup> Anniversary Celebration

2018 was a year of celebrations commemorating the 50<sup>th</sup> anniversary of the Department of Computer Science at the University of Houston. The festivities culminated with a gala held on campus on October 20.

In this issue of CS Now, we look back on the event with articles covering the winners of the CS Distinguished Alumni Awards, as well as a historical perspective from Louis Vogel, one of our students who was around when the department was born.

The 50<sup>th</sup> Anniversary Gala reviewed the field of computer science with the first part of the evening addressing the incredible changes computing has made to our lives over the past 50 years. Next, we had a glimpse into our future with technology through presentations by our guests, Prof. Moshe Vardi from Rice University and Prof. Kara Kockelman from the University of Texas at Austin.

In a thought-provoking talk, "Technology is Driving the Future, But Who is Steering," Prof. Vardi made a compelling case for a fresh approach to public policy to ensure positive human impact of computing innovations. Prof. Kockelman took the audience on a fascinating journey into a future with self-driving cars through her talk, "Autonomous Vehicles are Here, Are We Ready?"

The highlight of the event was the celebration of the many contributions of UHCS faculty and alumni. The event attracted the alumni from the 60s, 70s, 80s, 90s, and 2000s. It was fascinating to hear what our alumni remembered from decades ago; perhaps not surprisingly, their accounts were

often in sharp contrast with those of the faculty at the time!

Eight alumni – Karis Ng, Michael Slater, Michael Wright, Dr. Bojan Cukic, Dr. Wei Ding, Dr. Troy LeBlanc, Dr. Eduardo Mendizabal Ruiz, and Pamela Szabo – were honored with UH Computer Science Distinguished Alumni Awards. It was also amazing to see seven former and current chairs of the department come together at the event.

As usual, I invite you to join the vibrant UH Computer Science community by signing up at Computer Science at the University of Houston ([www.linkedin.com/group/4992307](http://www.linkedin.com/group/4992307) or [www.linkedin.com/company/csathuh/](http://www.linkedin.com/company/csathuh/)). Our alumni are also invited to join the UH Computer Science Alumni Association ([www.uhcsaa.org](http://www.uhcsaa.org)).

We have events frequently, and I look forward to seeing you at one of them.

- Jaspal Subhlok, Professor and Chair of Computer Science



Former and Current CS Chairs – Olin Johnson, J. C. Huang, Lennart Johnsson, Stephen Huang, Marc Garbey, and Jaspal Subhlok – with Ernst Leiss, the longest serving Current Faculty who Hosted the Chair's Session.

## UH CS: Distinguished Alumni Awards

One of the best legacies of an academic department is its alumni. On October 20, 2018, we celebrated the achievements of selected distinguished alumni.

The UHCS Distinguished Alumni Award honors an alumnus or a group of alumni who have shown excellence in leadership, entrepreneurship, research, teaching, or service and have made a difference to the economic, social, and cultural challenges affecting the quality of life in Houston, the state of Texas, and the world.

The purpose of these awards is (i) to recognize and honor selected alumni; (ii) to bestow the limelight on these recipients' endeavors and ask the wider community to take notice; and (iii) for all of us to be inspired.

### UHCS Distinguished Alumni (Group) Award

The recipients of the 2018 UHCS Distinguished Alumni (Group) Award were Karis Ng, Michael Slater, and Michael Wright.

Over the past decade, the UH Computer Science alumni have transformed into a vibrant community with regular social events and help the department in a variety of ways including input on coursework, helping the student organizations, student placement, and fundraising. Many alumni, staff, and faculty helped make this happen, but the lion's share of the credit goes to Karis Ng, Michael Slater, and Michael Wright for making this possible. Michael Wright graduated summa cum laude (with minor in Math) in 2013. Karis Ng graduated in 2012. As many of us know, she enjoys volunteering at local schools and planning CS alumni events. Michael Slater graduated in 2011 with a B.S. degree. He is a board member for the UH NSM Alumni Association.



UHCS Distinguished Alumni Group Awardees – Michael Wright, Karis Ng and Michael Slater – with CS Chair, Jaspal Subhlok.

### UHCS Distinguished Alumni (Individual) Awards

The recipients of the 2018 UHCS Distinguished Alumni (Individual) Awards were Dr. Bojan Cukic, Dr. Wei Ding, Dr. Troy LeBlanc, Dr. Gerardo Mendizabal, and Pamela Szabo.

### Bojan Cukic (M.S. '93, Ph.D. '97)

He graduated from our department twice, in 1993 (M.S.) and 1997 (Ph.D.). His Ph.D. advisor was Professor Bastani, and the title of his dissertation was "The Transformational Approach to Software Reliability Assessment."

Bojan followed an academic career, and his publication record actually includes two papers in the Journal of Applied Probability. This is important because it took him two years to pass an undergraduate course in Probability! That made him insecure about a career in computing. Upon graduation, he became a journalist. However, the magazine he worked for was banned, and there was a possibility of politically motivated prosecution.

Under the circumstances, a Computer Science career looked appealing again, so he continued to graduate school. Bojan not only contributed to science but also served our profession as the Director of the NSF Center for Identification Technology Research. Bojan fostered numerous industry/university collaborations, several of which resulted in the creation of start-ups.

Specifically, he co-founded NexID Biometrics, LLC. For 10 years, the company commercialized fingerprint liveness detection and spoof mitigation. The software was used in laptop authentication and many high-security systems. The company was acquired by Precise Biometrics in 2017 when it became the exclusive supplier of fingerprint systems for Samsung smartphones.

Bojan now serves as a Professor and Chair of the Department of Computer Science at the University of North Carolina at Charlotte. Since he assumed the chairmanship in 2014, the department's undergraduate and graduate enrollments doubled, and the new research awards to faculty increased by 40 percent. The department hired 16 new faculty members, increasing in the process the proportion of women and minority faculty to one-third.

His latest appointment is Interim Executive Director of the Data Science Initiative. Bojan currently leads the creation of a unique, studio-based bachelor's degree in Data Science, which will reside in the new, transdisciplinary School of Data Science.

### Wei Ding (Ph.D. '08)

She graduated with a Ph.D. degree in August 2008. Her advisor was Dr. Christoph F. Eick, and the title of her thesis was "Discovering Regional Knowledge from Spatial Datasets." This research work was in collaboration with the Lunar and Planetary Institute in Houston. She later received her first NASA research grant for work that was related to her Ph.D. dissertation.

Wei serves as Associate Professor at the University of Massachusetts Boston, and her promotion to full Professor is now under review. Starting in June 2019, Wei will work at the National Science Foundation as a rotating Program Officer of the Division of Information and Intelligent Systems of the Directorate for Computer & Information Science & Engineering (CISE).

Many of her projects are focused on the applications of information and intelligent systems in bioinformatics, health sciences, astronomy, geosciences, and environmental sciences. Her latest objective is developing a new clustering algorithm for cancer subtyping using gene mutation data.

She does all this with an exceptional dedication to her students, particularly the first-generation college students, minority groups, and women in the sciences. Wei will receive the 7th Annual Distinguished Woman in Science Award and attend the award ceremony hosted by WISAY - Women in Science at Yale (<http://wisay.sites.yale.edu/>) in April 2019.

Because of her meticulous nurturing, a first-generation college student, who transferred from a community college with significant financial challenges, finished his undergraduate study with distinction, continued his Ph.D. work under her supervision with an NSF Graduate Research Fellowship, and will join McGill University as an Assistant Professor in Fall 2019.

In her spare time, Wei enjoys cooking, dancing, and community volunteer services. She is a member of the Town Celebration Committee of Town Lexington and the Community Endowment of Lexington, Massachusetts.

### **Troy LeBlanc (M.Sc. '99, Ph.D. '09)**

Troy LeBlanc received his M.Sc. in May 1999 (Advisor: Dr. J.C. Huang) and his Ph.D. in December 2009. His Ph.D. advisor was Dr. Edgar Gabriel. The title of his thesis was "Design and Evaluation of a Communication Library for Volunteer Computing Environments."

Troy now serves as Chief of the Mission Systems Division in the Flight Operations Directorate at NASA Johnson Space Center. If you've paid attention to international news, you'll know that this past October a Russian Soyuz Rocket had a major failure of its booster on lift-off from Baikonur, Kazakhstan. The crew, a NASA Astronaut and a Russian Cosmonaut, safely aborted and landed four minutes later in the desert of Kazakhstan. Troy was one of the NASA astronaut management representatives at the launch site and was involved in the ensuing contingency operations.

Among his duties, Troy is in charge of all the hardware and software engineering for the Mission Control Center at Johnson Space Center. Mission Control Center is under continuous minor modifications, but for the second time in its history, a major re-architecture was necessary. Troy led this project from 2011 to 2016 which resulted in an up-to-date data center and millions of dollars of operations cost savings for NASA.

For his efforts, he received a NASA Exceptional Service Medal. Troy is also the manager for a NASA-wide team that is leading the way for mission system cybersecurity. From this perspective, Troy has oversight of the Mission Control Centers at all 10 of the NASA field centers across the U.S. The result has been more resilient computing systems for command and control and improved communications among the NASA facilities with regard to proactive defense against cyber threats.

### **Gerardo Mendizabal (Ph.D. '12)**

Gerardo Mendizabal graduated in 2012. I had the pleasure of serving as his advisor. The title of his thesis was "Lumen Segmentation in Intravascular Ultrasound Data."

After his graduation, Gerardo returned to Mexico as faculty at the University of Guadalajara. He immediately started working on a number of biomedical problems. For example, while talking with a researcher in genetics, he came up with the idea that if the DNA data could be represented as a signal, we could benefit from all the existing theory, methods and hardware in the area of digital signal

processing.

After working on this idea, the team obtained results comparable to traditional methods but at a fraction of the time. Thanks to this and other research accomplishments, Gerardo gained membership to the Mexican national researchers' association which is the highest recognition from the Federal Council for Science and Technology in Mexico.

He is now a Researcher 1 at the University of Guadalajara. I always advise my students to capitalize on their strengths. One of the top 5 strengths that characterize Gerardo is ideation. That means Gerardo is fascinated by ideas. So, Gerardo saw an opportunity in industry. He realized that companies in the media space could potentially benefit from computer vision and machine learning methods for the collection and analysis of data.

One of the first methods he developed was a method that allows generation of a replay in virtual reality within two minutes from the time that the broadcast video appears on TV. Gerardo now serves as VP of Engineering at Golstats, and he leads a research team with 10 members.

One interesting fact is that Gerardo never liked soccer, and he was never interested in watching the games. However, now he spends most of his day analyzing soccer matches.

### **Pamela Szabo (B.Sc. '80)**

Pamela Szabo graduated summa cum laude with a B.Sc. degree in December 1980. She now serves as Co-Founder and CTO at Stone Bond Technologies in Houston.

One fun fact about Pamela is that she was probably the first person to "hack" into the UH Computer Center. Right out of college Pamela was hired by Shell Oil Company as the internal computer graphics consultant to the research centers. This was during the very early ages of graphical simulations. She had the opportunity to teach 3D graphics and concepts, to work on the drivers and graphics, and to become a contributor to the first 3D Reservoir Simulators.

Pamela started her first company developing computer simulations and later implementing automation and robotics in manufacturing plants. Pamela felt indignant that working with data was such a tedious task. Every IT project relies on data. It's always necessary, but NEVER fun.

After contemplating the problem for a few years, Pamela developed an approach to streamlining data management. That paradigm became the underpinnings of what is now called Data Virtualization. Using this approach, Stone Bond, and a handful of other companies, are reducing the data manipulation time and infrastructure up to 90 percent.

I offer my warmest congratulations to all the recipients. As many of you know, my lab and the Department of Computer Science are part of my extended family. The best compliment that I received recently is that I have a young mind for a person of my age! I attribute this to all the students and alumni of our department. I am unbelievably honored and proud to be part of the Department of Computer Science family.

Warm congratulations to all the recipients. We are all very proud of you. Way to go Coogs!

- Ioannis Kakadiaris, Hugh Roy and Lillie Cranz Cullen Distinguished University Professor of Computer Science

## CS Students Attend 2018 Grace Hopper Celebration

In September 2018, Houston once again hosted the largest conference for women in computing: the Grace Hopper Celebration (GHC). This conference is the yearly culmination of the work of the AnitaB.org association.

Founded in 1987 by computer scientist Anita Borg, the association aims at connecting, inspiring, and mentoring women in computing of diverse background and ethnicity, novices and experts, from industry to academia. The Grace Hopper Celebration is organized in collaboration with ACM and is one of the largest gatherings of its kind.

In 2018, around 20,000 people flew to Houston from all over the world to participate in this event. During the conference, attendees have a vast array of events to pick from.

The schedule included more than 400 sessions made up of presentations, panels, keynote speeches, and workshops. A large area was dedicated to more than 80 poster presenters, some of which were participating in the prestigious ACM Student Research Competition. Attendees could also roam around the extraordinary career fair, sponsored by almost 400 companies and organizations, including top brands like Google, Microsoft, Facebook, Intel, Accenture, and Walt Disney.

While students from UH Computer Science are always encouraged to attend the conference, this year the department guaranteed its presence through a delegation of 16 fully-sponsored students (and 1 faculty member). The students were selected in May through a formal application process. A few other students were able to attend by their own means, meaning they either volunteered for the conference or received a scholarship from GHC.



CS Students Group Photo at 2018 Grace Hopper Celebration.

At the end of the conference, we asked our delegates about their experience. "It was very inspiring and motivational," said Rabab Fatima, a senior undergraduate student. "It made me feel like I was part of a bigger community that advocates for diverse, inclusive, and exceptional talent in technology and computing." Another student, Dwija Parikh, shared her enthusiasm: "Overall, it was one of the best experiences I've had so far. It was very motivating and educational. Despite being only three days, it was very impactful and helped me get a clearer vision for my career. I would definitely love to attend again."

The conference is rich and busy with people and events. Looking at the schedule ahead of time and selecting which events to attend is important to get the maximum benefit from the experience. "I thought the conference was very overwhelming because there's so

much to do but not enough time to do everything" was the comment shared by Brenda Gonzalez.

We asked to our students to name their favorite sessions. Many mentioned the opening keynote speech, during which AnitaB.org President and CEO Brenda Darden Wilkerson welcomed everyone and encouraged all attendees to "keep aiming high, dreaming big, and working hard." The keynote also featured CEO and Chief Development Officer of NIO U.S. Padmasree Warrior, who shared her view about the future of autonomous vehicles and women leadership, and Founder and CEO of Uncharted Power Jessica O. Matthews, who spoke about her "accidental" venturing in the tech industry and demonstrated - while wearing heels - an energy generating jumping rope of her design.

Other favorite events included the featured session of Dr. Anita Hill, who discussed the future of the #MeToo movement, and the Mentoring Circles, where participants had the chance to speak with more than 70 volunteer mentors about various topics, from job searching to graduate studies.

The Mentoring Circles are one of the most popular conference events and usually cap out quickly. Attendees hoping to attend must register ahead of time. According to our delegates, it's worth it: "The Mentoring Circles were one of my favorite sessions because it was so helpful, and all the mentors were very invested in helping us out. It really helped me figure out what I wanted to do after graduating and what options I had in industry and academia."

All of our delegates spent a significant amount of time at the career fair, looking for a job, an internship, or possibly a graduate position at a prestigious university. Of our students, 64.7 percent were interviewed during the span of the conference, and more than 1 in 3 were selected for an internship shortly afterwards, while others are still cultivating their contacts.

"The career fair gave me an opportunity to search and apply for summer internships. I was able to talk to the employees to understand various factors about the company like the work culture, attitude toward women, their role and experience" was the comment of Deepthi Mave. Another student recommends: "Don't always wait for big companies, try some relatively small ones." Those who were not offered a position could console themselves collecting a ludicrous amount of swag (t-shirts, bags, cups, sunglasses – the list goes on).

In 2019, the celebration will be in Orlando, Florida, October 2-4. The department is planning to continue its sponsorship program, so we encourage our students to be on the lookout for the email announcing the opening of the application process. Since the number of departmental sponsorships is limited, students interested in attending GHC 2019 should also try other routes, starting with submitting an application for a GHC scholarship, which covers registration, travel and lodging (applications opened in January). It is also possible to apply to be a "hopper," a conference volunteer. For this, the application process opens in May ([ghc.anitab.org/hoppers](http://ghc.anitab.org/hoppers)). Check out the conference website ([ghc.anitab.org](http://ghc.anitab.org)) for more information and opportunities, and visit [AnitaB.org](http://AnitaB.org) to learn more about the work of this inspiring association.

- Giulia Toti, Instr. Assistant Professor of Computer Science

## 2018 UH CodeRED Hackathon

In Fall 2018, CodeRED, celebrating its 5th anniversary, kicked off another successful hackathon as a group of dedicated student leaders and volunteers hosted the largest hackathon in Houston at UH.

A hackathon is an innovative event where participants from various colleges and high schools in the U.S. and foreign countries work in small teams to build software and hardware solutions to real-life problems in 24 hours. It also includes engaging mini-events, team-building exercises, workshops, and more. The free event was open to all high school and college students.

As a UH CS hackathon organization, we have come a long way. We started in 2013 by hosting our inaugural hackathon named CodeRED. We then incorporated a space theme starting with Liftoff and followed by Curiosity, Exploration, and Discovery.

Being a student-run organization, the core team of directors has changed through the years. The directors have passed the mantle to the next generation to lead succeeding hackathons. Year after year, we have seen growth in the event's quality through means of planning, organization, and operation.

Ijeri Omitogun, a Co-Director of Logistics, reflected back to when he started out as a participant; "I have been a regular participant of the hackathon since Curiosity, but taking a position among the board of directors gave me so much insight on what goes on behind the scenes. Directing CodeRED honestly challenged me. I found myself having to meet strict deadlines and think outside of the box to solve many problems."

CodeRED Discovery was packed with challenges and workshops from our sponsors and mini-events from Major League of Hack (MLH)! As an added bonus, CodeRED's Communication and Public Relations team hid a Morse code in all the attendees' badges and signage throughout the event. The Morse code led to a quick scavenger hunt with a clue on our website. The winners of the scavenger hunt won a Raspberry Pi to help them keep exploring their ideas with an Internet-of-Things (IOT) device. The attendees had the chance to win prizes from our sponsor challenges as well as the general challenge.



CodeRED Attendees Working on Their Projects.

One may ask what powers this organization and event. Located in the small space in the 5th floor of Philip G. Hoffman Hall, the CodeRED committee organized and ran a team of directors dedicated

and united in the vision of bringing students together through an event where they can explore their ideas and develop corresponding software and/or hardware products. The directors believed in a core mission of providing this opportunity to students primarily from across the nation to collaborate and work together to build things using their skills while, at the same time, learning new knowledge.

In doing so, CodeRED also created an outlet for students to showcase their skills to future employers and form networks with them. The committee had many challenges along the journey of organizing and hosting the event.

Dhaiwat Patel, Director of Communications, said "As a team, we wanted to showcase what was possible even with limited resources and wanted to make it a really good experience ... unforeseen challenges arose a week before the hackathon, but we were able to pull together and make it happen."

During the hackathon, the students were given the opportunity to network with people in the workforce as well as their peers in the Computer Science industry. Sebastian Macedonio, a senior attending his first hackathon said, "CodeRED was a fun experience. I had the chance to work with people with different levels of experience on my team. The atmosphere was competitive and exciting. The staff and volunteers were great with accommodations throughout the event. I had a great time and am looking forward to attending again." The hackathon is also a place for participants to showcase their skills in solving real-world problems and to potentially get offers from sponsoring companies.

Throughout the event, the directors played a major role in making sure the event ran smoothly.

Hayaan Merchant, Executive Director of CodeRED, explained his reasoning as to why the event was a success. "We had to make sure all different parts of the hackathon, from administrative details to logistical issues, were handled perfectly to ensure successful execution of the event. All the directors came together and meshed well to guarantee the event flowed in perfect unison."

Logistics, a major CodeRED subcommittee, was in charge of securing venues, reserving necessary equipment, and ordering food for participants. Anvesh Mahendravada, a Co-Director of Logistics, shared how he felt about being a director. "It really enabled me to learn more about what goes on behind the scenes such as the extensive planning that is involved while working alongside like-minded individuals."

Sales also played the major role in securing funding from sponsors to make it possible to host the event. Samad Virani, Director of Sales, said, "Being the Sales Director for CodeRED Discovery was an extremely enlightening experience. It really took me out of my comfort zone. My job was to secure funding and sponsorships for CodeRED Discovery by contacting different companies and asking them if they would be interested. I got the opportunity to meet new people and companies to help set up an environment where students are free and open to build whatever they want." Samad worked closely with Rabab Fatima, Director of Finance. She shared this about

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## Cont'd: 2018 UH CodeRED Hackathon

her experience, “Handling this responsibility, and being a director of CodeRED, was one of the most fulfilling and fun experiences of my college career, both as a student leader and a computer science student. It helped my personal growth by instilling in me the values of responsibility, organization, and money management. I also made amazing friends within CodeRED and really valued the importance of teamwork.”

Public Relations and Communications have created the face and brand of what CodeRED has become. Ramon Ramirez, Director of Public Relations, shared his experience, “My time as Director of Public Relations for CodeRED was a fulfilling experience that I would gladly partake in again. As a director, you have many hats to wear within your title with each bringing their own responsibilities. This has its challenges, but it also allows you to do things that you wouldn’t otherwise do. As Director of Public Relations, my job dealt with anything a participant had to face. That includes registration, emails to participants, the CodeRED website, and some social media.”

The Communications and Public Relations team worked to make sure that print and digital media, production design, and marketing challenges were solved. Dhaiwat commented about his role, “Being a director in CodeRED often meant that you could be in charge of anything outside of your department. We, as a team, all took charge in facing any challenges head on as a shared collective to help any department that needed it. My main goal and responsibility was the successful execution of all designed materials and experiences in

various events. With my colleague, Marjan Nasirova, we developed a theme to make all the media such as badge design, posters, signage, social media artwork, etc., as cohesive as possible. The overall CodeRED hackathon has been a great experience from back when I was a participant, a Co-Director, and the Director. It’s something I would do again given the opportunity!”

Overall, CodeRED hackathon 2018 was a major success. Part of the official student hackathon league, MLH, the CodeRED hackathon stood apart from many others by the diversity it delivered.

CodeRED Discovery hosted 350 students from various universities across the nation, such as Louisiana Tech and Purdue University, bringing diversity to the sphere of student collaboration. In the end, over 35 teams submitted their projects and showcased their skills in this 24-hour event.

The event was sponsored by companies such as Pariveda, PROS, Oracle, and others. With their sponsorship, we were able to run yet another successful hackathon. We look forward to seeing CodeRED continued by the generations to come.

- **Hayyaan Merchant** (Senior), **Dhaiwat Patel** ('18), and **Marjan Nasirova** ('18), UH Computer Science

## Early History of Computer Science

The school year was underway, in either 1960 or 1961, at my high school in Alice, Texas. We had “an assembly program” in the auditorium, and the speaker was Dr. Elliott I. Organick from the University of Houston.



Dr. Organick was a pioneer in a national program regarding education for the new field of computer science. In general, the public didn’t know much about those new things called computers. Dr. Organick had a prop with him that was similar to the structure of post office mailboxes. He used it to demonstrate how a computer stored information one step at a time in a specific address, and had to specify which address to do what with and where to put the

result. He talked about computer science in general, and I thought that sounded like a really good thing.

Then, in the summer of 1962, just in advance of my senior year, I attended a National Science Foundation summer program for six weeks at Texas A&M University where I learned how to program an IBM 650 in machine language. (Yes, real numeric machine language. “70” is the code for “Read a card from the card reader into the card reader memory location,” and the machine didn’t have core memory but used a rotating drum for memory.) Toward the end, I learned some assembly language in SOAP, but that is another story. I got to

see an IBM 709 that A&M had but only ran a very simple Fortran I program on it.

Dr. Organick and the National Science Foundation had set a course for me—my lifelong fascination with computers.

I entered college at Rice in fall 1963 as a physics major. At the end of two years, I had taken all the computer classes then at Rice except for the EE classes regarding the historical Rice Computer. Because of my computer interests and Dr. Organick, I transferred to UH and began my junior year as a math major.

At the end of the school year in 1967, I earned my math undergraduate degree but could not become a Computer Science major yet. I am not a historian, but in my memory, Dr. Organick had worked with UH administration at the College of Natural Sciences and Mathematics to create the Computer Science Department in 1967, but the Texas College Coordinating Board had not yet approved the degree program. So, I had to be a graduate student in math for the academic 1967-1968 year while I waited for the degree program to be approved in 1968.

In fall 1968, I became a UH Computer Science major along with a few other students and obtained a research fellowship and then a teaching fellowship. As part of the research effort, UH had an Interdata Model 4 minicomputer to work with. Our Model 4 had 16K of memory and was interfaced to a paper tape reader equipped teletype.

# HISTORY OF CS/GRADUATION

Our official research project used the Model 4 to accept touch tone input and respond like a calculator with voice answer back using a limited vocabulary. The department was housed in a single-story engineering building. Since I knew the Model 4 from the research work, I used it as a basis for my master's thesis. My thesis advisor was Joe B. Wyatt, the director of the computer center at the time. Dr. Organick was on my thesis committee because he was a nationally recognized operating systems expert, and my thesis involved using microcode on the Model 4 to implement the paging aspects of virtual memory somewhat similar to the Multics operation system that Dr. Organick had written about. I did work as a teaching fellow with Dr. Walker in teaching the introduction to computer science based on his text.

Professor Wyatt and Professor Bob Sibley, and I think Dr. Newhouse, had created an outside company to do various computing activities. This helped them discuss real-world problems in the classroom. For example, the company had created a new computer selection system for jury selection for Harris County. After graduation, as a summer activity, the company had me teach the Air Force in Wyoming how to use their mainframe system where I was able to use the IBM IBSYS information I had learned in the classroom from Dr. Organick.

I graduated in 1970. As I remember, one of my classmates graduated mid-term and the other had a last name that was ahead of mine in the alphabet, so I was actually the third graduate of UH's first graduating class in the Department of Computer Science.

At the UH computer center, we had modified the Fortran compiler to allow recursive calls so that in Professor Sibley's compiler class we could implement a recursive descent compiler pretty much directly from the Backus-Naur definitions of a language.

Later, while I was working in Virginia, in addition to my day job of operating systems support for GECOS on the Honeywell 635 (also known as the GE 635), I taught the recursive descent compiler model

at Christopher Newport College of the College of William and Mary thanks to Professor Sibley's training. (I had to learn Pascal on the fly from the original "yellow book" in Backus-Naur notation by the language creator, Niklaus Wirth, because it was the only recursive language available on the CDC 6600 at that time.) The knowledge I had from the UH program allowed me to do this successfully, using Pascal to teach the students and the existing faculty at the same time.

The point of all this history is that I learned a great deal from my time at UH both on specific topics and in a broad sense. I found that the academic orientation I had from UH was a great help as I went on in my professional career. The foundation of the UH program was a cornerstone in my ongoing efforts to remain current professionally. For example, I learned UML on my own and taught others about the value of State Diagrams in system design.

My message to current students is that you need to learn as much as you can while you are in the program both in your area of interest and from all the different components. Preparing yourself with the program to continue to grow is the key. Study not only the technical programming, but also learn to analyze and solve business problems.

Remember that throughout your career, your job will always be focused on meeting the needs of your clients, so be sure that you develop successful communication skills, too. From what I have seen, now that I am retired and can look back over my career in operation systems support, data center management, application systems development, management consulting, and management of technical implementation teams across a variety of industries, the UH Computer Science program is an excellent place to begin your journey.

- Louis Vogel ('67 Math, M.S. '70 Computer Science)

## Fall 2018 Graduates

### B.S.

Arin Abed-Stephen  
Ramzey Abushaaban  
Bryan Acuna  
Nujud Abdullah Z Alabdali  
Alishah Allana  
Luis Alvarado  
Nicolas Ariza  
Jonathan Attoe  
Basilio Barron  
Mike Bi  
Isabelle Charafeddine  
Wali Chaudhary  
Jose Chelala  
Rohith Cherian  
Austin Claytor  
Kwaku Dua Dabanka  
Rene De La Calleja  
Toul Deguia-Cranmer  
Mihir Desai

Pio Napoleon Estepa  
Rabab Fatima  
Ian Fennen  
Amanda Foster  
Kristian Galvan  
Jorge Garcia-Rivera  
Matthew Garza  
Doan Ha Nguyen  
Brendon Hillebrand  
Tommy Huynh  
Absar Jaliawala  
Benjamin Juarez  
Jay Kavarthapu  
Alvin Keyser  
Jason Khan  
Shehbaz Khan  
Abhinav Kumar  
Murtaza Lodgher  
Vincent Ly  
Anvesh Mahendravada  
Jobe Maknojiya

Shahina Maknojiya  
Krishna Marepalli  
Elizabeth Martin  
Howard Mokolo  
Chance Morris  
Adham Najjar  
Marjan Nasirova  
Duc Nguyen  
Grant Nixon  
Christina Ochsner  
Nicole Ogunlana  
Lindsay Ortiz  
Iptihar Osman  
Sara Oubeid  
Dhaiwat Patel  
Samarth Patel  
Christopher Pelton  
Angela Pham  
Jerome Phelps  
Denys Ponce Gonzales  
Kevin Portillo

Kevin Portocarrero  
Claudia Quinones  
Ramon Ramirez  
Ronnie Sammour  
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