

ALUMNI SERVICE AWARD

Roseanne Silva honored for her generosity and commitment.

MORE THAN A DREAM

Tech CEO and founder Panagiotis Zikos reflects on entrepreneurship journey.

The Network

INFORMATION NETWORKING INSTITUTE

4

KEEP CALM, AND GET CREATIVE

How the INI community came together in a year of twists and turns.

16

HANDS-ON LEARNING

From autonomous shopping competitions to robotic racecars, INI students learn by doing.

REIMAGINE THE FUTURE



A LETTER FROM THE DIRECTOR

Dr. Dena Haritos Tsamitis

Barbara Lazarus Professor in Information Networking

The pandemic has disrupted our way of life in so many ways. Often, I hear students saying, "I wish things would go back to *normal*," to the way it was before COVID-19. I understand why students feel this way. They carved out a thoughtful plan and looked forward to coming to Pittsburgh and the INI to launch their careers. As we all know, COVID-19 put a wrench in everyone's plans.

Though I don't know what the future holds in the post-pandemic world, I encourage students to reimagine their future, rather than wait for it to simply happen. They have the opportunity to use their unique knowledge and talents to innovate solutions to problems that didn't exist before COVID-19. It's been remarkable how our students have adapted and overcome so many challenges as we pivoted to remote instruction within days and how new students accepted the challenge of enrolling at the INI during this uncertain time. Nothing was going to get in the way of achieving their goals!

I am proud of how the entire INI community stepped up during this time of crisis. When COVID-19 struck last spring, the INI transitioned to remote instruction in a matter of days. The INI team ensured our students had the tools and resources to excel in their courses remotely. Over the summer, our faculty worked closely with CMU's Eberly Center to further adapt their courses for hybrid instruction in Fall 2020. One of our courses, Introduction to Information Security, was selected to serve as a model for hybrid instruction as a CMU Signature Course.

The INI went above and beyond in supporting our students - checking in on students not only for their academic progress, but also their overall well-being. We worked tirelessly to keep our incoming class well-informed and engaged throughout an ever-evolving situation.

Through these efforts, I wanted to assure every student that they could turn to their INI family for help at any time, for any problem big or small.

I know there is still a long road ahead of us. Like all of higher education, the INI faces many serious challenges as a result of the pandemic. But if there is one thing I am sure of, it's that we are resilient. The INI team is hard at work creating new study options for our students so that they have maximum flexibility in pursuing their academic goals. The faculty and student services team are doing everything in their power to make sure our students have what they need to succeed academically and personally. Staff are working around the clock to ensure the safety and well-being of our community above all. **I know we will come out of this experience stronger than ever.**

While much of our resilience comes from individual grit and adaptability, I believe it also comes from the word at the center of the INI name: **network**. We can't get through these obstacles alone, and we don't have to. I think of the advice that INI alumna Roseanne Silva (MS02 '91) gave to the graduating class at commencement 2019, before the global pandemic. She challenged the graduates to "nurture your network" by knowing when to ask for help and when to give it back.

During this time of physical distancing, it's easy to feel separated from our communities of support. But when we help each other rise to the challenge, we can count on our networks to accomplish extraordinary things—no matter the distance.

Will you join me in reimagining the future?

The Network

INI ANNUAL MAGAZINE

TABLE OF CONTENTS

Keep Calm & Get Creative: 2020 Edition	04
Commitment to Anti-Racism	07
Celebrating the Class of 2020	08
New Faculty Q&A	10
Meet Our Students	12
Aspiring Cyber Entrepreneur Receives EWF INI Fellowship	14
Hands-On Learning: AI Shopping, Roborace and Research Duos	16
Roseanne Silva Earns Alumni Service Award	18
Alumni Leadership Council News	20
More Than A Dream: Panagiotis Zikos	22
Class Notes	24
Inside the INI	26

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KEEP CALM & GET CREATIVE



This year was full of unexpected twists and turns.
Here are some ways the INI community pulled through.

Graduate school is meant to be tough. It tests you, motivates you and pushes your creative limits. Work hard and you will gain not only the credentials to succeed in your field, but also rewarding experiences, connections and knowledge that benefit you for life.

Grad school is hard enough as it is, and 2020 only made it harder. The COVID-19 pandemic sent shockwaves around the world and life as we know came to a grinding halt. The INI community was no exception. Nationwide shutdowns, hiring freezes, and travel restrictions affected incoming and current students alike, while faculty took on the challenge of redesigning courses for remote and hybrid learning. Meanwhile, the human toll of the virus has left us in a state of uncertainty that's unlikely to go away any time soon.

Throughout it all, INI students, alumni, faculty and staff demonstrated that life goes on even in this strange, new reality. They managed to land internships and start jobs in new cities. They engaged virtually in their courses and in campus life from different time zones. And most importantly, we all found new and creative ways to support one another.

We want to take a moment to reflect on a few important things we learned this year and celebrate what makes the INI so wonderfully resilient: ***you!***

Trust your network

Internships are an important part of the INI experience. Our students secure competitive placements with high salaries at top tech companies and perform so well they often receive return offers. But when the pandemic struck, students faced a new challenge: how to launch their career with this steppingstone experience during the peak of hiring freezes and layoffs. In response, **Rachel Amos**, INI Director of Career Services and Employer Relations, ramped up her career coaching and networking efforts, including tapping into the INI alumni network.

"Our generous alumni shared openings on their teams which allowed students to secure an internship," said Amos. She also leveraged INI's relationship with the Pittsburgh Technology Council to connect with local startups, forming nine new partnerships with emerging companies.

As a result, **100 percent of students secured meaningful and challenging summer internship experiences.**

"I was able to get valuable experience as a security engineer as well as understanding what it takes for a startup company to be successful," said **Arezu Mansuri**, a bicoastal information security student who worked for a cloud security startup co-founded by a CMU alumnus. "The technical experience and communication skills I gained will allow me to have a strong start to my career."

"The uncertainty we dealt with during the spring semester helped me prepare to face the uncertain future," said **Shakul Ramkumar**, who interned at Apple. He also landed his internship through the INI's alumni network. "The INI came to the rescue by teaming me up with another INI alum who gave personal and contextual advice regularly throughout my internship," he said.

For Ramkumar, the highlight of the summer was presenting his internship project to Craig Federighi, Apple Senior Vice President of Software Engineering: "If you had told me a year back that I would be doing this, I wouldn't believe it!"

Adapt to the present, reimagine the future.

A few weeks before the INI admissions acceptance deadline in April, the university, and much of the U.S., shut down. Admitted students faced a difficult decision: whether



“ To help us do better every day, INI was very responsive in addressing concerns to make us feel comfortable.

– SHAKUL RAMKUMAR

to begin their graduate program now in the midst of the pandemic, recognizing that their first semester at their dream school would be far different from what they imagined.

INI director **Dr. Dena Haritos Tsamitis** set the tone for the INI's response: "We understand these are challenging, uncertain times, but we are here to support you in every way possible. Your time is now!"

She led the INI's staff and faculty team through a robust summer engagement initiative, marked by frequent, transparent communication and creative incentives to support fall enrollment.

No matter your location, your home is the INI.

For INI's new international students, the journey to Pittsburgh was complicated by shuttered consulates and long waits for visa interviews. After months of lockdown, first-year student **Sreyash Tripathi** learned that his local embassy in India had opened just days before classes began in August.

He managed to get his visa and book a flight with one of only three airlines – compared to the typical 20 plus – flying to the U.S. but was turned away at the check-in counter because the ever-fluctuating international travel rules had changed once more. After another re-booking and nearly losing his luggage in Newark,



which he discovered by deciphering his boarding pass barcode like the security pro he is, Tripathi arrived in Pittsburgh.

"Resilience is the key to move forward at CMU," said Tripathi, relieved to have made it to his new home in Squirrel Hill. "When I got admitted to the INI, I knew that COVID or no COVID, this wasn't an opportunity to miss out. The faculty and the academic team at INI were extremely supportive!"

A key element of this supportive approach was fostering a sense of community virtually through exciting, hands-on opportunities. Tapping into the COVID-19 pandemic tracking and forecasting effort underway at CMU, the INI partnered with Delphi Research Group to host a COVIDcast hackathon.

"This hackathon was inspiring because we had INI alumni working with current and newly admitted students, all coding together on a great cause," said **Professor Aleecia M. McDonald**. "The INI family stretches back over 30 years, and we still come together to use our time and talent for public good."

For **Xinna Guo**, an MS32 student from China, winning the hackathon strengthened her determination to start at the INI right away. Faced with embassy closures and travel restrictions from China to the U.S., she traveled to Cambodia to apply for her F-1 visa but was rejected. She did not give up.

"Thanks to the support from INI classmates and faculty, I managed to pass my second interview and finally got my F-1 visa," said Guo, who opted to study remotely from China for the fall semester. Her decision was solidified by the INI's supplemental funding to build a more productive remote study environment in addition to flexible internship options.

Keep calm, and... get creative!

Carnegie Mellon's faculty are world-class, renowned educators. In just a few short days, they transitioned their courses online in March. But when faced with a hybrid fall semester, they had to entirely reimagine course content and rethink the materials and tools students needed to succeed, whether they were in Pittsburgh or across the globe.

For "Introduction to Embedded Systems," a heavily lab-based, hands-on course, **Professor Patrick Tague** redesigned the lab activities and restructured the delivery model to accommodate students across the world. Working with the INI team, he mailed 32 lab kits throughout the U.S. and Asia containing an embedded prototyping board and external sensors. Rather than using standard programming libraries or operating systems that most embedded developers use, his students learned to build those components from scratch while working directly with the processor and peripheral modules.

"It's critical that we provide our students with the same quality experience via hybrid instruction as they would get in any other semester," said Professor Tague. "As a faculty member, I want to do all I can to ensure students learn as much as possible, and we also want to throw in some fun, to keep spirits high during these challenging times." ■



Xinna Guo logs on for remote courses from her home in China.

COMMITMENT TO ANTI-RACISM

At the INI, we recognize that supporting Black Lives Matter is not a question of politics or ideology, but rather humanity. We must all do our part to end racial injustice once and for all.



Inclusivity, equity and diversity are core values of the INI community. To embrace these values fully, each and every one of us must commit to anti-racism. We will not forget the sadness and outrage felt around the world last summer following the senseless killing of George Floyd and countless others due to racist violence. We will continue to stand up

for those who are vulnerable in our communities because of systemic racism. We understand we won't always be perfect in our efforts to confront and challenge racial injustice; however, we are dedicated to continually learning, growing and improving so that our communities will one day be free of racial inequality.

INI'S CALLS TO ACTION

Make a Personal Commitment to Anti-Racism

Don't be afraid of tough conversations. Recognize that it is a privilege for some members of our community to educate themselves about racism, rather than experience it firsthand.

Intentionally Foster A Culture of Inclusion

What makes the INI unique is our culture, and as a community, we must continually work together to embody these values at the INI.

Engage with Your Community

Be empathetic and make an effort to understand what others are going through. Share ideas or stories that inspire you and give you hope during difficult times.



You do not have to be an expert on issues of race to be involved in this conversation and to effect change. Right now, each and every one of us needs to be asking ourselves: *how can I use my time, talents and energy to be deliberately and unequivocally anti-racist?*

– DR. DENA HARITOS TSAMITIS



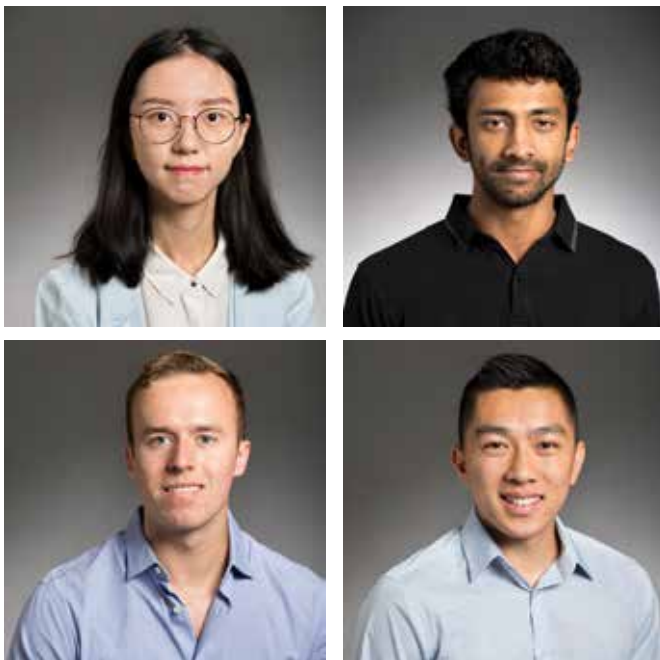
CLASS of 2020

Honoring the MS30s



Now is your time. Go out and change the world. You've got this!

– Dr. Dena Haritos Tsamitis



Awardees (clockwise): Yang, Sivaram, Tunitis and Nguyen.

Each graduating class has written their own memorable chapter of the INI story. Even so, the Class of 2020 is truly an extraordinary one.

The MS30s rose above challenging circumstances with resilience and perseverance. Each of these 146 graduates touched the INI in their own special way and we know they will go on to do great things in the world.

At our virtual celebration in May 2020, we honored our graduates, recognized the award winners and shared our best wishes as they transitioned from students to alumni.

INI Graduate Awards

Each year, we honor a few of our graduates that truly go above and beyond the high standards of the INI and help create the amazing community that we have here. Congratulations!

- *Outstanding Student Services Award, Research Assistant:* **Mingran Yang**
- *Outstanding Student Services Award, Teaching Assistant:* **Haran Sivaram**
- *Leadership Award:* **Daniel Tunitis**
- *Innocent Habiyaremye Memorial Award:* **Thomas Nguyen**

A Walk Down Memory Lane



INI Orientation Boat Cruise. "Advice for first-year self: Be brave and you can do it!"
- *Huanxin Ding*



Practicum Showcase 2019. "I took a number of interesting courses, developed great friendships, and made lasting memories."
- *Jeyhun Gafarov*



Holi Celebration. "I take pride in being a part of the INI and have enjoyed this journey immensely!"
- *Pragati Mishra*



"Seven of us spent our first New Year's Eve in America and cooked a meal together."
- *Lyuliang Liu*



"I'll miss the diversity of experiences, knowledge, and culture that opened up new ways to think about technical problems!"
- *Victoria Zheng*

NEW FACULTY Q&A

We chatted with the three faculty members who joined the INI in summer 2020.

Dr. Ehab Al-Shaer, Distinguished Career Professor in Pittsburgh. He has spent more than 22 years as a researcher and educator in the field of cybersecurity. *In spring, he taught Advanced Real-World Data Networks and Special Topics (ST): Network Security: Engineering Analysis and Automation.*

Dr. Cynthia Kuo, Associate Professor of the Practice at CMU Silicon Valley. She has experience in industry and academia as a startup founder, product lead and user experience researcher, using sensors to invent new, impactful technologies. *In spring, she taught Academic and Professional Development 2 and ST: Visual and Interaction Design for Engineers.*

Dr. David Varodayan, Associate Teaching Professor at CMU Silicon Valley. An award-winning educator, he brings extensive teaching experience in computer systems, telecommunications and machine learning. *In spring, he taught Fundamentals of Telecommunications Network and ST: Applied Adversarial Machine Learning.*



// We're thrilled to welcome such exceptional faculty to our INI teaching and research community!

Q: Hometown and alma mater?

Ehab: Alexandria, Egypt. Old Dominion University, Northeastern University and University of Petroleum and Minerals in Saudi Arabia.

Cynthia: Rockville, MD. Stanford and Carnegie Mellon.

David: Sydney, Australia. University of Toronto and Stanford University.

Q: What drew you to the INI?

Ehab: Smart, hardworking, and diverse students, as well as collegial and pioneering faculty.

Cynthia: I love INI's focus on interdisciplinary education while building deep technical skills. I am a big proponent of interdisciplinary education; I have three interdisciplinary degrees!

David: The chance to work with highly motivated students, top-notch faculty and unparalleled staff.

Q: Why did you become a professor?

Ehab: My passion is sharing my knowledge and experience with students to enable them to do better.

Cynthia: Coming from industry - most recently, partnering with startups and co-founding my own startup - I see a need for well-rounded engineers. I returned to CMU to teach the dynamism and creativity that students will need to survive in tech.

David: I've loved the intellectual dynamism of universities since my first semester as a student. CMU is my fourth university home!

Q: Who is your biggest inspiration?

Ehab: My Mom!

Cynthia: Professionally, I have tremendous respect for Jason Mayden (entrepreneur & d.Fellow at Stanford, former lead designer at Jordan). He once said to me that his goal is to be the dumbest guy in the room every three years. It means he never rests on his laurels and constantly seeks new opportunities for growth. His ability to adapt to new situations is off the charts.

David: I once had the good fortune to hear Dr. Freeman Hrabowski speak about his journey from being incarcerated as a child for marching for civil rights to becoming a college president. His story resonates with me whenever I learn of the courage of my own students who persevere in the face of adversity to pursue their educations.

Q: Best piece of advice you offer students?

Ehab: Two key criteria for success: ambition and persistence; learn from your teacher how to be more experienced than they are.

Cynthia: Growth requires getting comfortable with being uncomfortable.

David: The best lessons are usually learned the hard way. For me it's this: focus on progress, not perfection.

BONUS! Q: What is the most important takeaway that you found in your research?

Ehab: Sometimes we are impressed by how hard the problem was that you solved or how thorough the proof that you wrote; however the bottom line that matters is *how impactful your research is in others' lives.*

MEET OUR STUDENTS



From Stars to Code: Kuixi Song

Kuixi Song's journey to INI student began in the astronomy department at Nanjing University in China. After one year of study, he switched his focus from stars to code and transferred to software engineering. In search of his dream career, Kuixi logged valuable undergraduate internship experiences as an analyst with Goldman Sachs mobile team and software engineer with Microsoft AI Creation group.

"Both were great experiences, but I still found that I am more of a 'mobile' person, which means I can build UI and features to help users do things more easily."

"That's why I joined LinkedIn as an iOS intern and added some features on the LinkedIn iOS app," said Kuixi. In fact, users who have logged onto the LinkedIn app in the past few months have likely used the code he wrote. Kuixi's interest in iOS development started in

2016, when he set a personal goal to get published in the App Store. "After some trials and learning, I was able to publish my first app! It felt so good when I could search my name and let my friends download the app," said Kuixi. "Since then I have published several apps, from a Japanese wordbook to a daily task management tool, plus an 'Astronomy Picture of the Day' client using NASA API."

As a 2018 Apple WWDC scholar, he visited Steve Jobs Theater and met with Apple engineers to learn about Silicon Valley culture, which inspired him to apply for graduate school in the U.S. His dream career is to build something meaningful for users.

"Now, with courses I take at CMU, I think I can better put my iOS knowledge in an industry environment and try to make a career here," he explained. "I'll never regret this decision of joining CMU and being part of the INI family."



Kuixi (left) on the INI Orientation Boat Cruise.

On the Road to Professor Schwarz Iglesias

As a Latina in STEM, Sara is proud of her heritage. Pictured here overlooking the coast in Puerto Rico.



One day, we'll be referring to Sara Schwarz Iglesias as Professor. She is on the path to her dream career as a security researcher.

"INI was one of the few programs with a research track, which I really wanted as a way to enrich my security knowledge and grow my research experience to pursue a PhD," said Sara.

Sara won the GEM Fellowship through SAP and Carnegie Mellon, and interned with SAP National Security Services in summer 2019. To build her research expertise, she is working with Professor Patrick Tague on her thesis project focused on IoT security, "Finding a Topology Obfuscation Method for IEEE 802.15.4 Protocol."

"In a security perspective, I used to feel IoT was an unnecessary technology that was just candy for hackers. After taking *Embedded Security*, I really learned all the amazing things that this area is doing, and the need there is to secure it," she said.

Her time at the INI has grown Sara's confidence. She's an active student leader with GOINI and Women@INI and led the "What the Heck is a CTF" workshop for the local Pittsburgh community.

"I had always doubted my own talents, thinking that it was only others who helped me reach where I was. With the INI, I had to take really hard courses which pushed me out of my comfort zone. Now I know my talents and I am actually confident of what I can give to others," she explained.





“ I want to help bring those in my community and across the world up from poverty and provide them the tools necessary to continue moving up in life!

ASPIRING CYBER ENTREPRENEUR: RUCHI BANERJEE

13th EWF INI Fellow

Ruchi Banerjee's interest in cybersecurity began with a fascination with the unknown. "I think security is one of those fields where you know it exists, but you often don't know exactly how it works," she said.

Since she was in high school, Banerjee has been drawn to the puzzle of solving complex security issues, especially when it comes to protecting systems while finding vulnerabilities through the perspective of an attacker. "Being able to put yourself in someone else's shoes and knowing how to secure something is a difficult skill to develop, but so important," she explained.

Banerjee, an INI bicoastal student, is embarking on the next big step in her cybersecurity career as an EWF INI Fellow—a full-tuition information security fellowship awarded jointly by the INI and the Executive Women's Forum on Information Security, Risk Management and Privacy (EWF). As the 13th fellow, she joins a legacy of women leaders in tech thriving at major companies like FireEye, Slack, Apple, Google, Atlassian, Red Hat and Ernst & Young.

"Since 2007, the INI and EWF have empowered the next generation of women in the tech industry who are passionate about leading, supporting and inspiring others in their communities," said Dr. Dena Haritos Tsamitis.

Having learned the basics of computer science through her undergraduate studies at Georgia Institute of Technology and internships at several tech companies, Banerjee is now ready to deep dive into the world of security through her INI bicoastal program.

Despite the challenges of beginning graduate school in the midst of the COVID-19 pandemic, Banerjee has found ample opportunity to engage with her international INI cohort.

"There is so much diversity in this program—getting to meet people from around the world here has been amazing!" she said.

Being a part of a global community of like-minded peers is important to Banerjee, who has done her fair share of traveling. She studied abroad for a summer in Barcelona and has trekked to high-altitude destinations around the world including Machu Picchu, Mont Blanc and the Himalayas.

Banerjee's many treks around the world reflect her entrepreneurial spirit, which she hopes to put towards starting a cybersecurity business that combines her passion for computer science and interest in helping communities in need. "I want to help bring those in my community and across the world up from poverty and provide them the tools necessary to continue moving up in life," she said.

Banerjee is hoping that the INI's bicoastal program and support from the EWF community will equip her with the tools and experience needed to turn this dream into a reality.

"Not only would I be able to choose classes that were of interest to me in both security and business, but I could do it while working in two different environments throughout the program," she explained. "Being able to experience both coasts would help me understand where I want to eventually build up my career."

HANDS-ON LEARNING

CHANGING THE WAY THE WORLD SHOPS **1ST PLACE WIN**

Waiting in line is a universal part of any shopping experience. Yet machine learning and AI are poised to transform the retail industry through autonomous checkout, and a team of INI mobility students are leading the way.

MS30 graduates Yixin Bao, Xinyue Cao, Chenghui Li and Mengmeng Zhang placed first in the inaugural **2020 AutoCheckout Competition**, which brought together researchers to develop better, faster and more accurate autonomous checkout software solutions. In one semester, the INI team was able to develop and implement a sensor fusion approach that beat out seven other teams in the competition.

"As far as we know, we're the first to open source an end-to-end solution for an autonomous store. We're so proud to make this contribution to the industry," said Chenghui.



RACECARS & ROBOTS **ROBORACE COMPETITION**

Kartik Chaudhari is working to accelerate the rise of AI in vehicles and transportation. He's part of the CMU student team competing in the 2020-21 season of Roborace, an international competition involving autonomous, electrically-powered vehicles. Teams develop AI driver software to control steering, acceleration, brakes and more using onboard tech like radars and cameras to navigate the course. The hope is that technology developed for the racetrack could one day end up on the roads.

"We are working on a system for completely autonomous racing at more than 250 kmph," said Kartik. "The most important part for me is the happiness of working on a problem I really like and contributing towards the autonomous vehicle revolution."

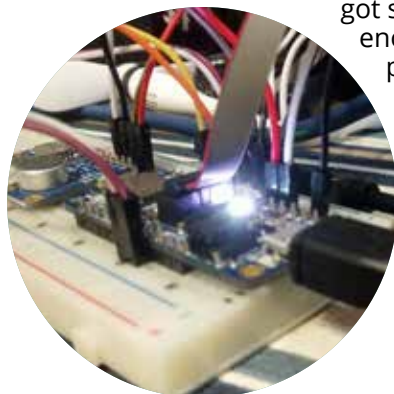




DANCE PARTY EMBEDDED SYSTEMS

In fall 2020, Professor Patrick Tague and his TA injected some good, old-fashioned fun into Introduction to Embedded Systems. In one lab, input to a microphone was processed to drive a programmable three-color LED, which flashes with different colors along with the low, medium and high pitches in whatever sound it hears. In other words, dance party lighting!

In order to allow students to seamlessly test their code from home, his TA created a virtual lab bench setup. By connecting a raspberry pi to an inexpensive device that works as an oscilloscope and making it available via remote connection, students could upload their test code and get electrical measurements, all from the TA's home in Pittsburgh. Problem solved!



Pranay (left) and John (center) on Mount Washington with friends.

RESEARCH DUO STUDENT COLLABORATORS

John Johnson and Pranay Garg just get each other. After meeting at orientation and finding themselves in nearly all the same courses, the duo quickly discovered they made a great team. Now, they are working together on an independent study focused on Google Chrome's JavaScript engine (V8).

"We are trying to put together a guide for security researchers, and hopefully add discoveries of our own," said John. They chose the problem statement after discovering the complexity of web browsers in courses like Secure Software Systems. "It's the essence of graduate school, connecting with mates who agree to work on just the most insane ideas, which lead to research experiences" added Pranay.

Beyond contributing to the field as researchers, the two are also sharing their expertise through picoCTF, Carnegie Mellon's Capture-the-Flag game. As problem development lead, John is working to ensure young people can use CTFs to expand their cybersecurity skill set, like he did in high school.

"When I started playing CTFs, I felt like I didn't know anything. picoCTF was an opportunity to build my confidence and push me in the right direction when I got stuck," said John. "I realized that with enough practice, and Googling, that every problem is worth attempting because you always learn something new." Worthwhile advice for any problem!

Alumni Service Award

ROSEANNE SILVA

As Roseanne Silva (MS02, '91) moved up the ranks over the past two decades at PNC Financial Services Group, she has always remembered her Tartan roots.

The senior vice president and business chief technology officer is committed to discovering new ways to give back to the university and enhance the student experience for future generations. For her vibrant passion, inspiring leadership and boundless generosity,

Carnegie Mellon University (CMU) proudly honored Silva with an Alumni Service Award on May 17, 2019. Later that same weekend, she shared her story with the Class of 2019 as keynote speaker at the INI graduation.



Lifting As She Rises

Over the past 25 years living and working in Pittsburgh, Silva has immersed herself in service to her alma mater as a mentor, donor, volunteer and leader. Recognizing the financial burden of earning a graduate degree, Rose created an Andrew Carnegie Society (ACS) Legacy Scholarship in 2012 to enable talented students to realize their potential at the INI. Beyond her financial contribution, Rose invests further in each scholar through mentorship. She guides each student's journey at the INI, serving as their resource, coach and greatest advocate.

"As a successful female leader in the highly competitive financial services industry, Rose's mentorship of her ALC Legacy Scholars and countless other INI students, particularly women and underrepresented minorities, has led them to realize their dreams. Today, her mentees are thriving in their careers and paying it forward by following her example of service," said Dr. Dena Haritos Tsamitis.

Despite her busy schedule, Silva is a constant presence at INI events, volunteering to speak at Women@INI roundtables, inspiring prospective students at Admitted Student Day and cheering for graduates at the commencement ceremony. As past chair of the INI Alumni Leadership Council (ALC), Rose led strategic engagement initiatives to strengthen the connection between students and alumni, including the launch of an online mentoring platform. She expanded her influence beyond the INI by participating on CMU's Alumni Relations Committee, volunteering for "Take a Tartan to Work" and speaking at CMU Alumni Association events on diversity in tech and other topics.

"Receiving the CMU Alumni Service Award is confirmation that my partnership with CMU to build a diverse and inclusive tech talent pipeline has made a positive impact on the communities that we serve," Silva said. "Throughout my career I have leveraged my years of experience to focus on increasing the meaningful participation of women in technology, specifically because the numbers are low."

To INI's graduating class, her advice: "Nurture a network of mentors, always be coachable, and include intentionally."



“Generosity is at the heart of Rose’s actions. She is the epitome of one who lifts as she rises, not only impacting individual students but raising the profile of the entire university through her partnership and support”

– Dr. Dena Haritos Tsamitis



ALUMNI LEADERSHIP COUNCIL

The ALC was formed in 2009 as a group of valued advisors and passionate advocates seeking to engage and strengthen the INI alumni network and help the INI achieve its strategic goals. With more 2,100 alumni around the world, the ALC helps foster communication and engagement among alumni, and between alumni and students.

2020 HIGHLIGHTS

Our alumni were a valuable resource for student support and mentorship during this year like no other! In a time where connection is more important than ever, INI alumni were there for our students in so many ways:

- Sharing advice and personal experience on our Admitted Student Slack, including recording the *Alumni Insights* video series.
- Serving as mentors in the Alumni and Student Intern Connection Program.
- Honoring our Class of 2020 by recording congratulatory video messages.
- Adding value by engaging in INI events, including as panelists for *Choosing the Right Job* workshop and judges at the *2020 Practicum Showcase*.
- Generous gifts to support our students and the department in these difficult times.

Thank you to our ALC for leading these initiatives, and to all alumni who gave back to the INI - in whatever way you could - this year!

Congratulations to ALC incoming chair: SAMANTHA ALLEN

Samantha is the Executive Director of The Cyber Security Intellects, a nonprofit organization where she has served as a founding member since 2017. She is dedicated to informing individuals about the importance of cybersecurity and privacy in their everyday lives and inspiring the next generation of cybersecurity professionals. Samantha graduated from the M.S. in Information Security Technology and Management program (now the M.S. in Information Security) in 2015 and worked for six years as Cyber Security Engineer and Project Manager at The Johns Hopkins Applied Physics Laboratory. In 2020, she received the Women of Color Technology Rising Star Award for her STEM outreach activities.

And thank you to our outgoing chair, John Droggitis!

John served a two-year term leading the council and will remain involved as a valuable member of the ALC.



Advice from the ALC: HOW TO GIVE BACK

MENTOR A STUDENT

Join the INI alumni network so students can reach out to you for advice and mentorship: cmuini.firsthand.co/

CONNECT ON SOCIAL MEDIA

Engage with us online for the latest news and opportunities to stay in touch with one another!

Facebook Group: Search "INI Alumni" & request to join!

LinkedIn: bit.ly/linkedinINI

GET INVOLVED WITH YOUR EMPLOYER

We can help connect your employer with INI talent! We are always looking for internship, full-time and practicum project sponsorship opportunities.



Have an idea for an event or initiative? Want to get involved in the ALC? Reach out to Sari Smith at:

ini-alumni@andrew.cmu.edu

MEET OUR MEMBERS

Samantha Allen, MSISTM '15, Chair

Yen-Ming Chen, MSIN '99

Victor Dibia, MSIN '11

John Droggitis, MSIN '91

Hana Habib, MSIT-IS '14

Vic Kapur, MSIN '01*

Navin Kumar, MSIN '05

Xinfeng Le, MSIT-MOB '14

Zoe Lin, MSIN '18

Utsav Mohata, MSIN '08*

Tyelisa Shields, MSIT-IS '10

Evan Wright, MSIS '08

Devika Yeragudipati Devarakond, MSISTM '12

Jacob Zhang, MSIT-IS '19

Sara Schwarz Iglesias, MSIS Student

Ruchi Banerjee, MSIT-IS Student

* *Exiting ALC Members - thank you for your service!*

MORE THAN A DREAM

Tech CEO and Company Founder Panagiotis Zikos Reflects on Navigating the Uncharted Territories of Entrepreneurship

Why would the head of an elevator company invest in Blockchain? For INI alumnus Panagiotis Zikos, CEO of Otis Elevator Co. for Greece and Cyprus, perhaps the better question is—**why not?**

Zikos began exploring applications for Blockchain during his time as an INI student in Athens, Greece. While taking a course on distributed systems - networks of computers that work together to achieve common goals - he had an important revelation about Blockchain.

“[When] I realized that [Blockchain] is the descendant of distributed systems, I knew I had to invest in it,” he said. “I started thinking of how I could use this fascinating technology in my business.”

“Soon enough, I got the idea of Service Smart Contracts, a digitized platform of Smart Contracts for our customers, exploiting in full scale the advantages of the Blockchain infrastructure,” he added.

Zikos graduated from the Athens MS in Information Networking (MSIN) program in 2003, which he refers to as the “first milestone” towards his entrepreneurial career. In 2007, he joined Otis Greece and became CEO of the multinational firm in just 10 years. Paralleling his rise at OTIS, he invested in New Technologies and, co-founded his own software company, iLink, in 2005. “I wanted to create my own

legacy, my own software house,” he said. “iLink is part of my legacy and something I want my children to be proud of.”

His first software product, PowerFleet, is an advanced telematics platform. While it has since evolved, thanks to new generations of developers who have worked on it over the years, Zikos considers PowerFleet to be a major highlight of his personal and professional life. “It was my child back then and when I saw people and customers trusting it, I was immensely proud,” he said.

He has many career achievements to be proud of, but he also recognizes that the road to success was, and continues to be, a challenging one. Before iLink, he was inspired by watching YouTube videos about how Apple, Google and Amazon began in their founders’ garages. “I was fascinated!” he said. “Yet, starting your own company demands more than a dream. You need to have a business plan and when I was 25, I did not know how to create one.”

Before he could even think of running his own company, he had to quickly move from idealistic dreams to the tough (and expensive) reality of building a business from the ground up.

“You must have a way to cover your first expenses, rent, first employees, marketing activities, sales campaigns, travel expenses, and business dinners. And this is when things get difficult,” he said.



“You have a good idea, you know you can succeed—but when you see all these obstacles you had never thought about, you get disappointed.”

It was during those hard times that Zikos fully realized the value of teamwork. He found a business partner, Stathis Vlachos, and together they founded iLink.

Foundation for Success: The People

Zikos attributes his success to the support of his wife and two daughters, and the people he works with at his companies. “What I love most is my team,” he said. “Young, energetic people that absorb all my advice and pave the future of the company. A good leader is always one who creates new leaders.”

His advice to aspiring entrepreneurs are: “You need to have strong guts...Do not listen to anybody but this little voice inside you that keeps on whispering: ‘You can make it!’”

Along with strong guts, Zikos also stresses the importance of humility: “Be patient in the beginning. Be humble when you succeed. You need to be a good person to remain a good entrepreneur...People do not cooperate with your company; they cooperate with you. Do not let success spoil you.”



THROWBACK: Athens MSIN in 2003

As the INI's associate director from 2002-2004, our director Dena established a master's program in Athens that was the first CMU degree to be earned at a global location.

Above, Athens and Pittsburgh MSIN students visit both cities during a summer immersion course in 2003. Panagiotis is on the far left of the top photo.

CLASS NOTES



Vishakha Jain '16 married **Prateek Jain '16** Jan. 29, 2020.

Hooman Radfar '04 co-founded a new company: **Collective** - the first online, back-office designed for businesses-of-one.



Dr. Hanan Hibshi '11 earned her doctorate in societal computing from CMU in Oct. 2018. She celebrated with her family, including baby boy **Ryan** born July 2018.



Dr. Daniel Votipka '12 earned his doctorate in computer science from University of Maryland in Nov. 2020.

Deboshree Dutta '09 launched **RoomPlays** - an Online Interior Design platform.



Victor Dibia '11 received IEEE Best Paper Award: "Data2Vis: Automatic Generation of Data Visualizations Using Sequence-to-Sequence Recurrent Neural Networks."



Vic Kapur '01 married **Guneet Kaur** Dec. 6, 2019.



Arushi Grover '17 and **Vashishtha Adtani '17** married Dec. 28, 2018.

Love At First Sight, from 6,779 miles away

Jacob Zhang '19 shares how he met Zoe Lin '18 remotely at the INI. Today, they serve together on the INI Alumni Leadership Council and are thriving in positions at Facebook and LinkedIn, respectively.

"I first saw my wife Zoe from an INI class, 14-740 Distributed Systems, when I was still in Kobe, Japan taking the class remotely. She was asked to come on stage and present how a network packet works. I was very impressed by her and how cute she was, and got her name later.

Since she is one year ahead of me, we didn't have much overlap in Pittsburgh. I first met Zoe in Silicon Valley after I graduated, and since then, our amazing journey started. We got engaged January 2020 in Wuhan, China and got married later that year October!"



NEW JOBS & CAREER MOVES

Rupsha Chaudhuri '08 joined Level 5, Lyft's autonomous division.

Chase Midler '12 joined Google Pittsburgh as a Partner Technology Manager in 2019.

Brady Tello '12 joined Palantir Technologies as a Forward Deployed Software Engineer and moved to Washington D.C.

Anil Taneja '14 admitted to Harvard Business School to pursue MBA.

PROMOTIONS

Su Gaustad '06 promoted to Director of Cyber Security at Ameriprise Financial.

Chinwe Abosi '07 promoted to Vice President, Cyber Security at Barclays Investment Bank.

Bobby Asher '08 promoted to Senior Engineering Manager at Bloomberg LP to lead the enterprise data platform.

Apurv Bhargava '17 promoted to Senior Security Engineer at Walmart.

MARRIAGES

Tyelisa Shields '10 married Tiva Sodje July 5, 2019.

Abin Ajayakumar '11 married Laxmi Rajagopal Apr. 7, 2017.

Sumaithri Mukkamalla '14 married Kumar Sricharan Apr. 30, 2017 and joined Facebook as

a Software Engineer in Mountain View.

BIRTHS

Adam Cecchetti '05 and wife Sarah: a son, Andrew Justin, in Apr. 2020.

Evan Wright '08 and wife Erica: a daughter, Callista.

Rituparna Banerjee '09 and husband Malay: a son, Aatman Duggar, in Oct. 2016.

Rochit Sapra '11: a daughter, Riona.

Hana Habib '16 and husband Aaqib: a son, Zain Ahmad, in Feb. 2020.

WE WANT TO INCLUDE YOU!

Wedding, birth, promotion, anniversary or award?
Submit news of your major life events to:
cmu.edu/ini/alumni/classnotes.html

INSIDE THE INI

Faculty News

Farewell Pei! Join us in wishing all the best to Pei Zhang, INI Associate Research Professor. He has accepted a new role at the University of Michigan.



Ehab Al-Shaer, Cynthia Kuo and **David Varodayan**, join the INI faculty. *Story on page 10.*

New Faces on the INI Team



Rachel Amos: Director of Career Services & Employer Relations



Dr. Hanan Hibshi: Research & Teaching Scientist



Deana Lorenzo: Communications Specialist



Sari Smith: Senior Director of Strategic Engagement



The INI's First Andy Award Winner!

Our entire INI community is so incredibly proud of Senior Associate Director of Admissions and Recruitment **Jennifer Spirer**, recipient of the 2020 Andy Award for Commitment to Excellence - Rookie! Her immense compassion and unwavering support have helped students navigate this immensely challenging year. She truly is a lifeline for prospective students from around the world.

"For INI applicants, Jennifer is more than just an admissions officer; she is their champion. I have never met anyone who works harder to understand and advocate for our graduate candidates," said Dr. Dena Haritos Tsamitis.

The Andy Awards, named for Andrew Carnegie and Andrew Mellon, are a tribute to the spirit of teamwork and dedication embodied by the staff at Carnegie Mellon. Individual staff members whose work has had a significant impact on the university are recognized for their outstanding performance and a commitment to excellence through the Andy Awards program.

**Follow INI on
Social Media:**



@inicmu or search "Information Networking Institute"

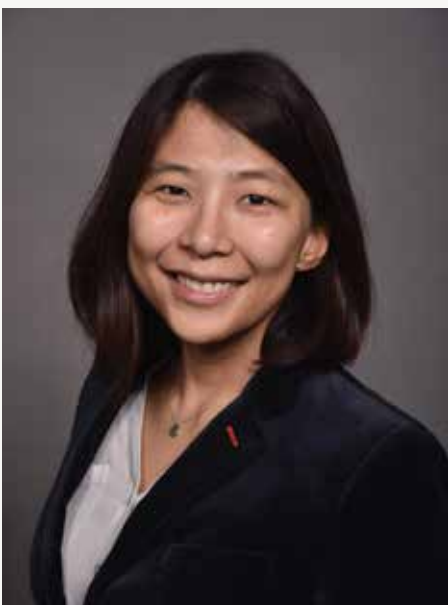


YOUR GIFT MATTERS

Your investment in the INI advances our work: bringing together the best and the brightest students with world-renowned faculty and staff to advance the fields of information networking, security and mobile and IoT engineering.

Make a donation to support students today!

giving.cmu.edu/ini



"I give because this is me paying it forward. I would have struggled to attend CMU if I hadn't received a scholarship. Now that I have the capability, it's my turn to help future CMU scholars to achieve their dreams."

Goldy Lim, MSIS '17

Director's Fellow & Joyce Brocaglia EWF Fellow

PwC | Advisory - Cybersecurity, Privacy & Forensics

#inigram

Share your INI photos on social media using our hashtag: #inigram!



Tartan face masks and beautiful fall weather made this year's Women@INI pumpkin-carving event a big success!



It's finals week, do you want to build a snowman?



MS32 Bailey Nelson has a new mascot on his desk: the coveted INI unicorn! He was part of a winning team in our Academic and Professional Development course.



Practicum goes virtual! Kudos to our bicoastal students on pivoting to remote teamwork and special thanks to our 2020 project sponsors!



Stunning views of Pittsburgh, captured by MS32 Chih-Wei Fang on Mount Washington.



"I couldn't be happier." MS32 Hugrun Hannesdottir has enjoyed exploring downtown Pittsburgh in her first year.