INNOVATE IN THE WILD

Practicum projects provide real-world industry experience in Silicon Valley
Welcome
Message from the Director

It’s been an incredible year at the INI. We welcomed 137 new students from nine countries into our MS28 class and six new staff and faculty into our INI family. Turning our eyes to the future of the INI, we engaged in six months of strategic planning and launched a five-year strategic plan entitled “Together We Can Shape the Future.” One of our first initiatives was called the BOB project: Building Our Bridges from the Pittsburgh campus to our Silicon Valley campus. INI faculty and staff worked tirelessly for more than five months to develop an unparalleled industry-sponsored practicum experience for INI students at both campuses.

2016 also marked the year we reached the milestone of 1,700 individuals in our alumni community. Seeking to create a dynamic opportunity for alumni engagement, we launched a new online mentoring platform called FirstHand to connect alumni with INI students. Thank you to the more than 280 alumni who have already registered as an advisor - we need your help to make this platform a success!

This edition of The Network highlights our core strength – our people, who are the fabric of the INI.

I believe that together we can shape the future. Are you with me?

Dr. Dena Haritos Tsamitis
Director of the INI

ON THE COVER:
“Ineffability” is the artwork of Andrew Werth (MS03), composed of Turing Patterns. Read his story on page 25 and see more of his work at www.andrewwerth.com.
INNOVATE IN THE WILD

Practicum Projects

Bridging the gap between theory and practice, the practicum project offers real-world industry exposure for INI’s bicoastal students.

Planning to drive your electric car today but not sure if you have enough charge to make it to Trader Joe’s?

“Just ask Alexa,” said Rishikesh Yardi, a Master of Science in Information Technology-Mobility (MSIT-MOB) student.

Utilizing Internet of Things (IoT) innovations like the Amazon Echo, his team of fellow Information Networking Institute (INI) students sought to optimize energy consumption on the modern electric grid in the project-based capstone course known as the practicum.

“I feel so happy to be solving problems that stand in the way of building a 21st-century grid,” said Yardi. Under the direction of SLAC National Accelerator Laboratory, the team of INI students built speech recognition-based technology systems to help consumers optimize energy usage – like when to charge their electric car or run the washing machine – by leveraging learning and APIs available to developers.

During the fall 2016 semester, Adobe, Ericsson, Google and Carnegie Mellon University (CMU) also sponsored practicum projects with topics spanning from smartphone sensors and drone imagery to container security and movie recommendation systems.

Ten teams of MSIT students built web platforms and mobile apps, analyzed user surveys, created novel research tools and made valuable contributions to the fields of computing, mobile systems and security.

“The practicum is an opportunity for students to work in an industry environment, applying their knowledge to solve real-life problems while learning from experts in the field. They are truly innovating in the wild.”

– Dena Haritos Tsamitis, INI Director
Ten teams of bicoastal MSIT students built web platforms and mobile apps, analyzed user surveys, created novel research tools and made valuable contributions to the fields of computing, mobile systems and security.

Working Alongside Industry Leaders

The results of practicum projects often reach a wide audience in the form of a published research paper or continued collaboration after the semester has ended.

Last year, Ericsson’s team was published in the 2016 CHI Conference Extended Abstracts on Human Factors in Computing Systems and this year, SLAC’s two teams showcased their work at Stanford University’s Bits & Watts Conference.

“The INI students brought an amazing energy and enthusiasm. They also brought an amazing set of skills and new tools,” said Sila Kiliccote, staff scientist and leader of SLAC’s Grid Integration, Systems and Mobility research. “My goal is to mentor them in a way that will guarantee their success.”

One of the key takeaways for students is mentorship by industry leaders.

“The best part about working with Ericsson was that our sponsor was very interested and extremely involved,” said Tanima Makkad, a MSIT-Software Management student. Her team dealt with live user data and a database of hundreds of movies to develop a research tool that compares movie recommendation algorithms for platforms similar to Netflix.

“Not everyone has the chance to play with real-world data,” she said, noting that this distinction set the practicum apart from typical coursework.

Impacting the Field

In a continuation of one student’s summer internship experience, Adobe’s practicum team analyzed the state of container security. By providing solutions to improve upon security weaknesses, these students contributed to a bleeding-edge domain with far-reaching implications.

“Working alongside top-notch security engineers at Adobe has the added advantage of being able to learn from their insights about security practices,” explained Shivani Singhal, a MSIT-Information Security student. “These skills will be very useful when we step into corporate life as young security engineers.”

According to Singhal, one of the best parts of the practicum is Adobe’s requirement that the research be published. By sharing their results, the students hope to give back to the security community from which they have learned so much.

Yet perhaps the greatest benefit – and challenge – of the practicum is learning to navigate the client relationship and bolster project management skills.

“As can be seen with great products and innovation, the customer might not exactly know what is needed,” explained Aparna Sridhar Murthy, a MSIT-MOB student whose team worked alongside Google’s IoT Lab. “It is our job as innovators to really understand the requirements and define the solution upon getting into the depth of the problem statement.”

Adobe (1)
Carnegie Mellon University (3)
Ericsson (3)
Google (1)
SLAC National Accelerator Laboratory (2)

2016 SPONSORS

Adobe (1)
Carnegie Mellon University (3)
Ericsson (3)
Google (1)
SLAC National Accelerator Laboratory (2)

Want to sponsor a practicum?
We start accepting proposals from corporate, government and research sponsors in May 2017.

VISIT
www.ini.cmu.edu/practicum

EMAIL
ini-practicum@andrew.cmu.edu
Strategic Plan 2021

Together we can shape the future.

With extraordinary agility, the INI has navigated the changing landscape of technology from wired communications in the 1980s to wireless, mobile and Internet of Things in today’s world. What began as a small fledgling program has evolved over the past three decades to become an integral department of Carnegie Mellon’s College of Engineering and home to over 300 students each year from across the world.

Amid such rapid growth and change, we have now arrived at a critical juncture. Our strategic plan is deliberate and thoughtful. We have considered our strengths, solidified our identity and determined a path forward. Now the work begins.

Attract and Enroll the Brightest Students

Enhance the Academic and Student Experience

Build Lifelong Alumni Engagement

Makers and thinkers, hackers and scholars, researchers and programmers – the INI seeks to recruit and cultivate the brightest of these minds.

The INI will strengthen our brand and engage in strategic, diversity-focused recruitment efforts and the identification of new markets in order to expand the INI’s reach and influence.

A flexible, interdisciplinary curriculum and an unparalleled student experience are among what set the INI apart from its peers. It is essential that students develop the knowledge and skills to be successful in the global market.

The INI’s alumni go on to serve high-powered companies, tech start-ups and government agencies. We recognize the value of our alumni, and seek to strengthen the bonds between the INI, our 1,700+ alumni and our current and prospective students.

By facilitating meaningful opportunities for alumni to remain connected with the INI, we lay the foundation for lifelong engagement.

“Paramount to our efforts will be a strategic investment in strengthening the INI’s brand. By highlighting our unique strengths, we will attract the best and brightest students.”

Download the INI’s strategic plan at ini.cmu.edu

Download the INI’s strategic plan at ini.cmu.edu
13 Things That Make Us Proud

1. **137 New Students**
   Our MS28 class is drawn from 9 countries: Argentina, Dominican Republic, China, India, Philippines, Saudi Arabia, Singapore, Taiwan and the United States.

2. **1,700 Alumni**
   We’ve reached a huge milestone: 1.7K members in our alumni community. If you haven’t joined our closed groups on Facebook and LinkedIn, do so today!

3. **INNOVATE In the Wild**
   Google, Adobe, Ericsson, CMU and SLAC National Accelerator Laboratory sponsored 10 practicum projects for bicoastal students at CMU Silicon Valley.

4. **PREPARING WOMEN LEADERS IN INFORMATION SECURITY**
   In 2007, the INI established a partnership with the Executive Women’s Forum (EWF) to jointly offer a full scholarship to an incoming INI student. The partnership has been renewed after 10 years and will continue to offer invaluable networking and mentorship opportunities to develop women leaders in information security and privacy.

5. **NEW FACES at the INI**
   1. Martin Carlisle, Director of Academic Affairs and Teaching Professor
   2. Asia Omriagan, Academic Affairs and Student Services Coordinator
   3. Kevin Tripodi, Assistant Director of Business Operations
   4. Mitta Persaud, Manager of Diversity and Outreach
   5. Jessica Burdi, Associate Director of Career Services
   6. Emory Ser, Receptionist

6. **Hello $113,159**
   That’s the average MS27 salary, an increase of over three percent from last year’s class. Top employers are Google, Amazon, Microsoft, FireEye, Visa, Yelp and Department of Defense.

7. **WE LOVE Hackathons**
   ...especially when we win. INI students brought home big wins at Microsoft’s Build the Shield and AT&T’s Mobile App Hackathon.

8. **$23M+**
   total CyberCorps Scholarship for Service funds since 2001

9. **LAUNCHED OUR Strategic Plan**
   The INI engaged in six months of strategic planning and launched our five-year plan entitled Together We Can Shape the Future.

10. **WHERE IN THE WORLD did INI students intern this summer?**

11. **CYLAB WINS BIG AT DEFCON**
    FortAddress, a Carnegie Mellon University spinoff startup, took home $2 million in prize money as the winners of the DARPA Cyber Grand Challenge (CGC), a first-of-its-kind hacking contest in which all participants were autonomous computer systems.

12. **OUTREACH Capture the Flag!**
    Melanie Rich-Wittrig (MSIS, MS27) hosted a Capture the Flag workshop for Virginia high school students at George Mason University’s Cybersecurity Youth Conference.

13. **WHERE IN THE WORLD?**
    Melanie Rich-Wittrig (MSIS, MS27) hosted a Capture the Flag workshop for Virginia high school students at George Mason University’s Cybersecurity Youth Conference.
Why Culture Matters

An excerpt from Dr. Dena Haritos Tsamitis’ October 2016 ITSP Magazine article about diversity and inclusion.

Through Women@INI (WINI) meetings and one-on-ones with my students, I hear about the gender bias and disparity that our students face as women in the tech field. Last year, a student approached me after Carnegie Mellon’s Technical Opportunities Conference (TOC) to share how her excitement of receiving offers from big-name companies was squashed by her male peers’ judgment that she had only blown them out of the water. As she later found out, the company systematically enabled female hires to bypass the technical interview, not only creating resentment among males towards their female colleagues, but also creating a culture of inequality and disparity in technical roles by gender.

An equal playing field and equal respect are what we strive for with WINI. Established in 2005 to create a nurturing and inspiring learning environment that promotes and celebrates gender and cultural equality and diversity, both within and beyond the INI.

WINI celebrated its tenth anniversary in 2015 by welcoming an incoming class that consisted of 34 percent women.

In a continued effort to provide funding opportunities to highly qualified applicants, the INI has established the Director’s Fellowship, which will provide partial- and full-tuition scholarships to incoming INI students.

Supporting Our Students

Established in 2015, the Director’s Fellowship is a partial- and full-tuition scholarship removing financial barriers to attending the INI.

In addition to GHC, the INI attended the following diversity-focused conferences in 2016:

- Women in Cybersecurity
- National GEM Consortium
- ACM Richard Tapia Celebration of Diversity in Computing
- Women in Computing Celebration (Carolinas and Capital Regions)
- HENAAC STEM Career Conference
- Louis Stokes Midwest Center of Excellence (LSMCE)

Want to Give?

Online: giving.cmu.edu/INI

By Mail: Fill out the Giving Envelope contained in this magazine.

More Information:
Contact: Jennifer Feyrer
Director of Corporate and Alumni Engagement
feyrer@cmu.edu | 412-268-9282

WINI is a sponsor of the Equal Respect initiative. Join the movement on Equal Respect’s Facebook group.

INI students with Professor Limin Jia at Grace Hopper.
From the Dominican Republic to the Steel City, Caleb De La Cruz is following his dream.

During Caleb De La Cruz’s first week at Carnegie Mellon University (CMU), he found himself eating ice cream with classmates from four different continents. Over the next month, he had tried a pair of Google Glasses, secured an interview with Pinterest, ate cheese with an Intel recruiter at the INI’s Mix & Mingle and cruised the three rivers of Pittsburgh.

One of his first homework assignments was defusing a bomb. “I forgot I was studying, I was just being a hacker secret agent,” said De La Cruz.

He describes courses at CMU as extremely challenging and incredibly interesting. “They force you to be creative, to solve problems without Google and just to immerse yourself in the course,” he added.

De La Cruz is a MS28 MSIT-Mobility student from the Dominican Republic. He worked as an Information and Communication Technologies (ICT) engineer while completing his undergraduate degree, all the while saving to attend graduate school.

“I always dreamed of studying at one of the top 10 colleges in the United States,” he said. After five years spent working and saving, learning English, participating in international mathematics competitions and earning high scores on the GRE and TOEFL, his hard work paid off and he arrived in Pittsburgh to begin his studies.

“My dream is to create software that can make your life a little bit better,” he said. “Yes, it’s a long-term goal, which involves education, practice and experience. INI is covering the education part of that dream.”

Meet the Director’s Fellows

**CALEB**

After 15 years at Proctor & Gamble (P&G), MS28 Goldy Lim decided to head back to school to study information security.

“Be prepared to buckle down and work hard,” she said. “I am learning a lot, but the courses are a lot more challenging than I expected. The professors are all experts in their fields, and I feel very privileged to be learning from them.”

As the Asia Regional Governance Leader at P&G, Lim was responsible for managing the company’s strategic partners in Asia. Her first introduction to information security came during a stint as an IT auditor, where the thrill of eliminating or mitigating control risks and making P&G just a bit safer gave her great satisfaction.

“Cybercrimes are becoming more and more sophisticated, which means the field will continue to challenge me and keep me interested for years to come,” she said.

**GOLDY**

That is why she turned her eyes outside the company and decided to follow her passion for information security. Lim chose the INI for its reputation of academic excellence and the bicoastal opportunities afforded in the MSIT-Information Security (MSIT-IS) degree.

“The MSIT-IS degree looked like a great opportunity to both learn the technical skills I needed, and practice them in real-life projects with Silicon Valley companies,” she said.

Her dream career is a C-suite level position in information security. She wants to develop the right tools, processes and skills to improve security controls and better safeguard corporate and customer assets.

“That is why I turned my eyes outside the company and decided to follow my passion for information security. Lim chose the INI for its reputation of academic excellence and the bicoastal opportunities afforded in the MSIT-Information Security (MSIT-IS) degree.

“She is a 2016 Director’s Fellow and recipient of the first Joyce Brocaglia Executive Women’s Forum-Endowed Fellowship.

Lim is a 2016 Director’s Fellow and recipient of the first Joyce Brocaglia Executive Women’s Forum-Endowed Fellowship.
Patricio Chilano views information security as a puzzle. “The field forces you to know about so many different areas: operating systems, networking, cryptography, web applications and programming languages,” said Chilano. “The more subjects you learn, the more pieces of the puzzle you have.”

Chilano is a MS28 MSIS student and a 2016 Director’s Fellow. He studied electronic engineering at the University of Buenos Aires, and worked for three years as an IT consultant and system administrator before deciding to focus on computer security. Though his undergraduate degree covered hardware and software topics, he lacked a security perspective and decided to specialize.

“The reason why I applied to the INI is because the graduate program is the most technical I have found compared with others,” he said.

The program’s flexibility is another major plus for Chilano, who is enjoying taking courses from departments in the School of Computer Science as well as the College of Engineering.

His dream career is developing computer systems and software that protect business infrastructures from cyber attacks.

“I’m really grateful for being awarded the Director’s Fellowship, without it I couldn’t be studying here,” Chilano said.

When Momina Haider built her first MATLAB keyboard game freshman year of college, she knew she had discovered her passion.

“Such a small feat it seems now to create a game in MATLAB but the challenges it entailed at that time were somewhat thrilling,” said Haider. “I feel the same thrill when I’m met with challenges in current projects at Carnegie Mellon.”

Haider is a MSIT-Mobility student and a 2016 Director’s Fellow. She earned her computer science degree in Lahore, Pakistan and chose the INI for its flexibility.

“The incredible power of computing as the ‘bicycle for the mind’ is what drew my interest and continues to maintain it,” she said.

At the INI, Haider says she is constantly learning new things, not only technical but social, managerial and team work skills. Above all, Haider likes to build systems. She hopes to get involved in work that builds tools to help people in their everyday lives.

With an interest in psychology and enthusiasm for world cultures, fashion and mass media, Haider admits she does not consider herself to be a ‘techie.’

“I know many women who do not enter the field because they feel they aren’t ‘techie’ or ‘geeky’ enough,” she said. “I think the impression that a good engineer must be a huge techie is misleading.”

According to Haider, the Director’s Fellowship made it possible for her to attend the INI. “I was over the moon at receiving such a wonderful opportunity to study amongst a global community to challenge myself, to grow and to achieve,” she said.
Securing a Future Career
INI and EWF celebrate renewal of 10-year partnership developing women leaders in information security and privacy.

Caitlin Hanley was first exposed to cybercrime during a high school exchange program in Germany. All it took was a few Internet searches while prepping for an English class presentation about chocolate. After wrapping up her research, Hanley was horrified to discover her computer had been infected with a virus.

"After many hours of frustration, I realized that I could not defeat the virus with my computer skills and knowledge," she said. "The experience sparked a desire to learn how computers work and how they can break."

Hanley is currently a Master of Science in Information Security (MSIS) student and is learning the exact skills she lacked when she got her first computer virus.

Her education is made possible through a full-tuition fellowship provided jointly by the INI and the Executive Women’s Forum (EWF). After 10 successful years, this partnership has been renewed and will continue to develop students like Hanley into leaders in information security and privacy.

"Our partnership with EWF is just one facet of the INI’s commitment to creating a nurturing and inspiring environment that promotes and celebrates gender and cultural equality," said Dena Haritos Tsamitis, director of the INI. "Caitlin is an exceptionally promising student and this opportunity gives her the chance to fulfill her potential in the field of information security."

ABOUT THE EWF INI FELLOWSHIP
The INI has partnered with the Executive Women’s Forum to offer the INI-EWF Fellowship to graduate students. It supports full tuition costs in order to ease financial worries for these students. In addition, they gain access to mentors who have reached executive levels in their careers. This intensive level support has helped to lift these scholars toward success.

Hanley is the 2016 INI-EWF Fellow.

"In this field, I want to go from retrieving and analyzing evidence after an incident has occurred to leading a team that prevents digital intrusions from happening," said Hanley.

How I Got Here
Pouria Pezeshkian is looking to reinvent the world, starting with music. The 2016 Presidential Fellow balances graduate study with his role as co-founder and CTO of a music technology startup.

> When I launched Nebula Instruments, I was the only member of the company. Today we’re a diverse team of 5 members, working together to create better musicians. Our product solves a major challenge in finding, creating and storing thousands of sounds – something that doesn’t exist today.

> I can tell the INI staff know the students well, and are a proponent of their interests and success. For me, that’s entrepreneurship, and the excitement is well shared with our director, Dena Haritos Tsamitis.

> If you want to gain more knowledge and hands-on experience, this is your place. If you’re inspired to make a difference in the world through innovation and hard work, then this is definitely your place.

ABOUT THE PRESIDENTIAL FELLOWSHIP
An endowment of more than $150 million has been established to support the Presidential Fellows and Scholars across all seven of CMU’s colleges and schools. Presidential Fellows will be selected annually through a process overseen by the provost that invites nominations from department heads and deans of the schools and colleges, at the university. By providing financial support to recruit and retain outstanding graduate students, these endowed fellowships ensure Carnegie Mellon remains a world leader in education and research.
Inside the INI

MARTIN CARLISLE

There's a new cybersecurity guru at Carnegie Mellon.

For the past 20 years, Martin Carlisle has educated and trained the nation’s future cybersecurity experts at the United States Air Force Academy. Now he is the INI’s director of academic affairs and a teaching professor.

Q&A with Professor Limin Jia

What's one thing most students don't know about you?

I come from Qingdao (sometimes spelled as Tsingtao which is also the name of a Chinese beer sold in the US). The brewery was founded by the German settlers pre-WWII.

What's the best piece of advice to offer graduate students?

Start career building the moment you start your graduate school. Attending talks and conferences, meeting people, building connections and identifying your weaknesses and strengths are equally important as getting A’s in your classes.

What's your favorite CMU tradition?

The Carnival in April. It's great to hang out with students, family, and friends, and eat funnel cakes.

Faculty & Staff Updates

INI teaching professor Martin Carlisle’s research on malware similarity, “CARDINAL - Similarity Analysis to Defeat Malware Compiler Variations,” was presented at the IEEE Malware Conference on October 18, 2016 in Fajardo, Puerto Rico. The research described how to identify identical malware that had been compiled with different compilers or different compiler options.

Alex Hills, Distinguished Service Professor of Engineering & Public Policy (EPP) and the first INI assistant research professor, received the Wimmer Faculty Fellowship for 2016-2017 at CMU’s Liberty Center.


Jon Peha, professor of EPP and Electrical and Computer Engineering (ECE) was invited to serve the U.S. State Department as a member of its Advisory Committee on International Communications and Information Policy.

Lorrie Cranor, professor of computer science and of EPP, concluded her term as Chief Technologist at the US Federal Trade Commission in January 2017. While at the FTC, Cranor contributed to a wide variety of projects, including serving on the committee that drafted the White House’s National Privacy Research Strategy, and organizing an FTC workshop on evaluating disclosures.

What You Need to Know in 2017

Reconnect with INI by attending an upcoming event or share your story to be featured!

April 21, 2017
INI Spring Carnival Events
11:30 AM-12:30 PM
KEYNOTE
Valerie Plame: An Ex-CIA Operative’s Take on Cyber Warfare
McConomy Auditorium, CUC
1:00-3:00 PM
PANEL DISCUSSION
Why Culture Matters: The Challenges and Benefits of Cultivating Inclusion in STEM Fields
McConomy Auditorium, CUC

Alumni Profiles

We are seeking those interested in being featured as an INI alumni spotlight. Take a look at bit.ly/meetINIalumni

Submit your information at bit.ly/INIalumni
Become a Mentor

The INI is launching a new alumni mentorship opportunity called Firsthand. It is a platform that connects alumni with INI students in an informal, one-on-one setting – entirely online!

“We selected Firsthand because it is easy to use. It only takes a few minutes to sign up as an advisor and the commitment itself is flexible and free,” explained Jennifer Feyrer, director of corporate and alumni engagement. “All communication is routed through the Firsthand system, which means your privacy is protected.”

Help us make this network a success by volunteering to mentor a current student. Register to become an advisor: https://cmuni.firsthand.co

**HIRAL SHAH**
MS19 | Stanford MBA Candidate

“As an alumna, I feel it’s my duty to help mentor current students and have them succeed in their career. I believe this is the best way I can give back to INI, that helped me get to where I am today.”

**CHUAN HAN**
MS23 | Google Software Engineer

“I just signed up on the mentor platform! I am very grateful for the training and lessons received from CMU/INI. So I’d like to help the current students as well.”

**Roseanne Silva**

From INI to CTO

The best advice Roseanne Silva (MS02) has ever received is to be a leader, not a follower. Her parents taught her that, and so that is what she has done, moving up the ranks over the past two decades to the position of Business Chief Technology Officer (CTO) at PNC Financial Services Group.

Raised in St. Paul, Minnesota, home of SPAM, Wheaties and more than 10,000 lakes, Silva got hooked on a career in information technology after a high school programming class. She studied electrical engineering at the University of Minnesota and relocated to New Jersey to work at Bell Communications Research (Bellcore). That is how she ended up in one of the first cohorts of INI students, graduating in 1991 with a Master of Science in Information Networking (MSIN).

“What my family thinks I do is ‘fix computers,’” she said. In reality, it is a little more complex. She now leads a team within the technology infrastructure services (TIS) team at one of the nation’s largest banks, ensuring a recoverable, scalable and secure technology infrastructure, from firewalls and servers to messaging tools and mobile devices.

“In the financial services industry, we are under increasing pressure to meet the demands of our customers to provide faster, easier and more transparent solutions,” she said.

After over 25 years living and working in Pittsburgh, she says what she loves most are the rivers, bike trails and neighborhoods. “Mr. Rogers was right, there are amazing people in his neighborhood!” she said. Silva enjoys biking, hiking and kayaking, and is a volunteer trip leader for Venture Outdoors (VO). Her all-time favorite activity is leading fireworks paddles on Pittsburgh’s rivers.

Silva currently serves as the president of the INI’s Alumni Leadership Council and is a CMU Legacy Scholarship Donor.

“FOLLOW YOUR PASSION, NURTURE A NETWORK OF MENTORS AND ALWAYS BE OPEN TO FEEDBACK.”

**WAY TO GIVE BACK**

Sharing your insights as a mentor is a valuable way to give back to the INI and Firsthand makes the experience incredibly simple and time-efficient.

**SIMPLE AND EASY**
It takes only a few minutes to sign up, especially if you sync your LinkedIn profile’s data. The commitment is flexible: you decide how often you want to be contacted.

**PAY IT FORWARD**
By mentoring INI students, you help to shape their future as alumni. The experience may inspire them to pay it forward as a mentor five or 10 years from now.

**LinkedIn**

**From INI to CTO**
CLASS NOTES

Good news in the lives of INI alumni around the world

Want your good news shared? Submit your information at bit.ly/INIclassnote

MARRIAGES
Kanupriya Tavri, MS21
Married Anuj Bansal on 2/26/16.

Abhinava Sadasivarao, MS22
Married Sourbhita Shenoy on 12/19/16.

Vikram Nair, MS26
Married Roopam Nair on 12/9/16.

Vignesh Gadiyar, MS24
Married Niveditha Shenoy on 12/19/16.

ENGAGEMENTS
Roseanne Silva, MS02
Engaged to Michael Tonkin in 2016.

RELOCATION
David Pearson, MS23
Relocated to Rochester, NY area with his wife Jenny and their two dogs, Gracie and Keiki.

BIRTHS
Baby boy, Soma, on 2/1/16.
Yuki Nishida, MS24
Baby boy, Rishaan Bose, on 8/29/16.
Rupsha Chaudhuri, MS18
Baby boy, Sosuke, on 3/10/16.
Takayoshi Fukaya, MS23

CAREER MOVE
Wei-Kuang (Edward) Lee, MS22
Joining Google's cloud team as Security Technical Consulting Manager.

Pushkar Joshi, MS22
Joining Apple as a Software Security Engineer.

Keith Hawkins, MS01
Joining Bloomberg, LLC as a senior engineer after 16 years with Goldman Sachs.

MSIN ALUM on his artistic career
After eight years working as a software engineer at the management level, first at Bellcore and later CNET, Andrew Werth (MS03) decided to make a change. He moved to New York City and discovered a passion for art. Today, he creates paintings best described as "organized, organic abstraction."

"Each painting is constructed through a slow, deliberate process that consists of applying thousands of individual brushstrokes one at a time," he said.

Many of Werth's paintings are composed around "Turing Patterns."

Famed British mathematician Alan Turing proposed that a process of "reaction-diffusion" is likely responsible for some of the pattern formation found in nature, such as the stripes on a zebra or the spots on a leopard. Werth simulates that process on the computer and uses the resulting patterns as the starting point for some of his paintings.

"Trying to 'build' a painting that will be intriguing and different and hold up over time also requires some of the same design skills and out-of-the-box thinking that is helpful in computer science," added Werth.

Most recently, his work was selected by the Monmouth Museum as part of their New Jersey Emerging Artists Series in summer 2016.

JOB PROMOTIONS
Devika Nair Syama, MS24
SENIOR PRODUCT MANAGER, Amazon Web Services

Kalpana Chaturi, MS19
VICE PRESIDENT, Bank of America

The First INI Baby
The son of two "gINI Pigs" considers following their footsteps to Carnegie Mellon.

After Belcore hired Sin-Kuen Hawkins (MS01) and Keith Hawkins (MS01), the future husband and wife were invited to attend the newly formed INI. In 1990, they graduated from Carnegie Mellon with their master's degrees in information networking.

Their first date was at the Squirrel Hill Eat'n Park and 27 years later, they had the chance to revisit the spot and reminisce on the INI's early days. The family returned to Pittsburgh this past summer to tour CMU's campus with their son Matt, who is applying to study engineering at their alma mater.

The students of INI's first class affectionately dubbed themselves "gINI pigs," a play on the idiomatic guinea pigs being used to test new ideas, and "quickly became a tremendous network of support for one another while navigat-

The son of two "gINI Pigs" considers following their footsteps to Carnegie Mellon.

The First INI Baby

"Back in 1989, the INI really was one of the first interdisciplinary programs," said Sin-Kuen. "In some ways, we felt like we were pioneers."

The INI's first class proudly sported their "gINI Pig" nickname on their softball team uniforms.

"What I remember most is the camaraderie of that first class. We were all in it together," said Keith. "The curriculum was very demanding and so we became like frat house buddies helping each other learn the material. Many of our classmates became life-long friends."

Today, the Hawkins live in Colts Neck, New Jersey with their two sons. Sin-Kuen is a part-time project manager for the Institute for Electrical Engineers (IEEE) and Keith is a senior software engineer for Bloomberg.
Invest in the INI

The success of the INI is a credit to the strong network of generous donors - alumni, students, parents, faculty, friends and staff - who give back and make a real difference.

In this edition of The Network, we spotlighted six INI students whose education at Carnegie Mellon was made possible through the generosity of donors. If you were inspired by Caleb De La Cruz’s journey from the Dominican Republic to Pittsburgh, Patricia Chilano’s commitment to fighting cybercrime or Momina Haider’s desire to build products that improve lives, consider making a donation to support the education of future INI students.

Your investment in the INI enables us to attract and enroll the brightest students while enhancing the academic and student experience. Only then can we pioneer the innovative and collaborative initiatives for which the INI and Carnegie Mellon are known.

Investment Opportunities

- Institute Naming
- INI Building
- Interview Room
- Project Room
- Interactive Studio Area
- Interactive Teaching Cluster
- DEC @ CIC and DEC @ Henry

Endowment Opportunities

- INI-EWF Fellow Fund
- Graduate Student Fellowship Fund
- INI Strategic Fund
- Named Graduate Legacy Fellowship

Expendable Fellowships

- Joyce Brocaglia - EWF Endowed Fellowship
- Strategic Initiative Endowment Fund
- Innocent Habiyaremye Memorial Award

Why I give to the INI:

I give so that others can receive a great education that will allow them to fulfill their dreams.

Marachel Knight (MS07)
AT&T, Vice President - Advanced Technology Planning and Realization

Two Ways to Give

- Online: giving.cmu.edu/INImag
- By Mail: Fill out the Giving Envelope contained in this magazine.

Why I give to the INI:

GIVING for me is still to participate in what was a great experience: studying at the INI.

Luca Zoia (MS22)
United Healthcare Group, IT Security Architect

Questions?
Contact Jennifer Feyrer
Director of Corporate and Alumni Engagement
jfeyrer@cmu.edu | 412-268-9292

5 things every alum should do

1. Connect on social media:

   INI Alumni

   LinkedIn: bit.ly/linkedinINI

2. Attend upcoming INI events.

   Spring Carnival weekend is packed with special INI events on Friday, April 21, including a keynote talk by Valerie Plame, ex-CIA operative, and a diversity-focused panel discussion.

3. Join your local chapter.

   Get involved with CMU alumni near you by joining a local chapter: cmu.edu/alumni

4. Get involved in the Alumni Leadership Council (ALC).

   Formed in 2010, the ALC’s mission is to engage and strengthen the INI alumni network and help INI achieve its strategic goals.

   Contact Roseanne Silva to learn more: rkatSilva@gmail.com

5. Invest in the INI.

   To those who have made a gift to the INI, thank you. To those who have not yet done so, consider contributing to an INI fund and make a Carnegie Mellon education possible for another student.
Share your INI photos on social media using our hashtag: #inigram!

Dean Jim Garrett talks with prospective INI students at the 2016 Open House.

Good food and good times as the graduating class (MS26s) gathered for GOINI's Spring Picnic in Schenley Park.

MS28s enjoyed a beautiful evening on Pittsburgh's three rivers during the annual Orientation Boat Cruise.

INI students presented their "Mindful Yoga" app at the INI Student & Alumni Showcase and Networking Reception during Spring Carnival 2016.

INI staff built a Lego bridge dressed as Bob the Builder during the INI team's "Building Our Bridges" presentations.

Divya Balasubramanian (MS26) hugs her father after receiving the Innocent Habiyaremye Memorial Award at the 2016 graduation ceremony.