iD Lab students like Shibani Maran help corporate clients see innovative solutions to technological challenges. Learn how on page 4.
**IRL Programs Debut**

DePaul’s Idea Realization Lab (IRL) launched two new initiatives last fall. In coordination with DePaul's Division of Enrollment Management, IRL created a virtual program for prospective first-year students that awards them a certificate in innovative making. Students receive free electronics kits and learn the basics of electronics and the internet of things (IoT) while developing their own gadgets.

IRL continued the program in the winter quarter with support from global engineering and technology company Bosch and the Chicago Connectory, a community of entrepreneurs, IoT startups and corporate innovators.

IRL also piloted its virtual DePaul Kids Program with a course on art and architecture for children ages 7–12 of DePaul staff, faculty, students and alumni. The children used Minecraft and Tinkercad software to learn about 3-D model design, digital and material prototyping, biomes and architecture. They then designed a Minecraft village that IRL staff produced on 3-D printers and sent to participants. Learn more and inquire about participation here.

**Short & Sweet Pandemic Film Fest**

Last September, DePaul students were tasked with creating short films of three minutes in length or less that focused on the COVID-19 pandemic or other traumatic events. More than 70 submissions were received. On Nov. 14, the School of Cinematic Arts (SCA) screened 37 of them at the Short & Sweet Pandemic Film Festival, a 90-minute virtual competition.

Four films were awarded cash prizes totaling $2,000: “IDKWFTBH” by Briana Clearly, “Galactic Gambit” by Brandon Lopez, “20 Dreams” by Jordan Hauber and “The Sleep I Lost” by Ying-Ting Chuang.

The competition judges were Emmy Award winner and CDM staff member Sandy Gordon, Student Academy Award-winning director Brian Robau and industry executive/filmmaker Todd Mendeloff.

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**Office of Alumni Relations**
alumni.depaul.edu

**College of Computing and Digital Media**
cdm.depaul.edu
intheloop@cdm.depaul.edu

**Editor**
Craig Keller

**Designer**
Francis Paola Lea

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Virtual Experts Talks

SCA adapted its Visiting Artists Series to a virtual format last fall by premiering videos of past events, followed by live discussions with faculty moderators of those events. Presentations included Jennifer Celotta, showrunner and writer on TV’s “The Office”; Brian Woods and Scott Beck, writers of the sci-fi horror film “A Quiet Place”; John Musker, director of Disney’s animated film “Moana”; and Stewart Lyons, line producer of TV’s “Breaking Bad.” SCA also held a live virtual screening of the documentary “Feels Good Man,” about internet meme Pepe the Frog, followed by a discussion with director Arthur Jones and artist Matt Furie.

The School of Design (SoD) Talks series also went virtual. “Omni-Specialized Design and Communities” was presented by Ari Melenciano, founder of Afrotectopia, a new media, arts, culture and technology fest for Black artists, designers, technologists, entrepreneurs and activists. “Design During the Pandemic” featured a SoD alumni panel sharing their creative pursuits during these challenging times.

DePaul Trustee Producing Documentary

Jessica Sarowitz (LAS ’91), a DePaul Trustee, philanthropist and founder of Chicago-based Miraflores Films, is collaborating with DePaul alumni at DePaul Cinespace Studios on “With This Light,” a documentary feature film about the late Sor Maria Rosa Leggol, a Franciscan nun who fought to end childhood poverty in Honduras. It is the first production by Miraflores, which aims to amplify the voices of inspiring women.

SCA alumni Erin Moreland (CDM ’19) and Anna Wasilczuk (CDM ’20) serve as associate producer and art director, respectively, on the film. Theatre School alumna Mary Kay Cook (THE ’97) is a unit production manager.

DemonHacks Hackathon

The student group Computer Science Society hosted its annual DemonHacks, a 36-hour hackathon, on Oct. 23–25. Held virtually, the invention marathon attracted 23 teams from the United States, Canada, England, China and India to develop hardware and software hacks that provided new ideas and solutions to various challenges. First place and best hardware hack went to EasyPoint, a cursor interface for people unable to use a physical mouse. The schedule also included tech talks and fun activities provided by sponsoring companies Protiviti and Discover, as well as Major League Hacking, a global student hackathon organization. Check out all the teams’ submissions here.
A decade ago, Olayele Adelakun, an associate professor of information systems in CDM’s School of Computing, began making trips with colleagues to Silicon Valley to find out why innovation continuously sprang from its tech-savvy companies. One key factor, they determined, is the collaborative ecosystem that joins business and academia in mutually beneficial, experimental enterprise—Stanford and Google, UC Berkeley and Facebook.

"After two or three years, we asked ourselves, 'How can we do something similar in Chicago?' says Adelakun. "We have the skills within the university to deliver solutions to their innovation challenges by building software and providing proof of concept, from mobile apps to web-based data analytics, across different types of products. So, we launched the iD Lab." Today, the DePaul Innovation Development Lab, directed by Adelakun and staffed by students from the School of Computing and School of Design, is a thriving tech-centric think tank and consultancy that turns business problems into functional, testable software prototypes. Its clients include Bosch, Allstate Insurance, Kimberly-Clark, Abbott Laboratories and CDW, and it boasts impressive faculty and industry advisory boards. Commonly known as the iD Lab, it has enjoyed explosive growth since its modest start in 2016.

"At first, we just had a few chairs and tables and no computer or printer," jokes Adelakun, because the iD Lab’s first steps were simply to raise awareness among local companies about its services and invite potential collaborators to a conference on campus. The response was enthusiastic, and participation continues to increase.

Held annually during DePaul’s fall quarter, the Optimizing Digital Innovation Conference attracted nearly 200 industry professionals from 40 companies, including Fortune 500 behemoths, to its virtual iteration last year to network with students and faculty and discuss new ways that their organizations can approach innovation. iD Lab projects for clients also provide valuable industry insights and accelerate career paths for students in CDM’s data analytics, experience design and software development programs.

"Every company in the consulting field requires about three to five years of consulting experience, or else you really don’t get in," says Dhyanesh Mullagur (CDM MS ’19), who worked in the iD Lab while studying game programming. He is now a senior technical analyst performing artificial-intelligence engineering for the Chicago office of global consulting firm Kin + Carta. "The iD Lab provided that training, which really helped with my interview at Kin + Carta. The lab was fantastic for developing the soft skill set that you don’t really gain sitting in class, like how to interact with and respond to clients, working with different capabilities like UX [user experience] and UI [user interface] data analytics, and collaborating in that sort of team environment."
Mullagur, who helped redesign a more efficient, visually interactive software interface for an iD Lab client that builds automotive systems and software, thinks the fresh approach students bring to problems helps companies unstick from established approaches they have used for many years.

“Our UI-UX team on one project completely changed the entire app interface in a way the client had never visualized, and it jumped them ahead of their competitors in that industry space,” says Mullagur. “It happened because we were a bunch of kids who didn’t know the space and were happy to break things and ask questions they weren’t asking.”

Adelakun agrees the lab’s success is partly because “we’re not familiar with all these companies’ limitations and start from a very clean, fresh slate. Ninety-nine percent of the time our clients tell us they prefer the different angle we take to solve a problem.”

He is quick to add that students hired for iD Lab positions also bring impressive skills to the work. “They’re able to take theories from class and put them in practical terms, working with real companies to solve real problems,” says Adelakun. “We’re not solving operational problems. We’re solving their next big thing.”

Much of the work the iD Lab performs is shrouded in nondisclosure agreements. Some projects that can be shared, however, reveal student teams’ adept blend of practical skill and bold creativity: an iOS prototype for Allstate, for instance, that collects mobile sensor data and digital fingerprints to help identify when policyholders who drive for ride-sharing services are on personal or company time when they’re involved in auto accidents.

Inspired outcomes are also driven by exceptional project organization, says Shibani Maran, a master’s degree student in information systems who is lab manager and lead organizer for the ODI annual conference. Maran analyzes problem statements to determine which resources and skills the lab needs to put together to solve the client’s problem. Most projects call for cross-functional teams comprising UI-UX architects, software engineers, business analysts (also called scrum masters) and, when needed, data scientists.

“Working as a team with real clients helps students understand the problems industry faces,” says Maran, “as well as what businesses might want from us in the future.”

Has the iD Lab followed in Silicon Valley’s footsteps? Mullagur thinks so.

“Nobody else in Chicago fills a need for these companies with this kind of framework,” he says. “Many of the lab’s clients don’t have the time or energy to do research in these emerging technologies because just maintaining their current projects is hard enough. Students, with their curiosity, knowledge and time availability, fill that gap, and this work supplements their classroom education in such a fantastic way.”
Competing in triathlons helped Ovetta Sampson (CDM MS ’16) stride past personal setbacks. The DePaul graduate’s career path evokes that athletic competition as well. She has moved from journalist to principal creative director at Microsoft, where she leads a team she says tackles “big, human-centered problems for big companies” in artificial intelligence, automation, digital transformation and manufacturing.

A police beat at the St. Joseph News-Press in Missouri provided a starting block in 1996 for the Chicago native. She soon segued to long-form articles exploring poverty and systemic resource deprivation in minority communities, a reporting role she continued to fill at the Colorado Springs Gazette.

“I wanted to broaden the narrative about marginalized people whose voices weren’t being heard,” says Sampson.

Sampson subsequently broadened that narrative globally as a writer and editor for two Christian humanitarian-aid charities. She traveled to refugee camps and conflict zones in Southeast Asia, the Philippines and the Middle East to document how donations helped children living in poverty and civilians wounded during civil wars and other conflicts.

“I was talking to widows whose churches were bombed and children who lost their arms to machete wounds,” says Sampson. “I was in Egypt when Mubarak fell and Tahrir Square went crazy.”

In 2012, Sampson returned to Chicago and took a webmaster position at DePaul’s Kellstadt Graduate School of Business. Computer science wasn’t a stretch for the journalist, who often mined databases in her reporting and helped develop an online employee benefits program for a Colorado restaurateur.

“My first love was actually coding and tech,” says Sampson, whose father taught her basic Fortran and COBOL on a Commodore 64 in her youth.

After earning a master’s in human-computer interaction at DePaul, Sampson worked with data scientists on human-centered artificial intelligence projects in the Chicago office of design firm IDEO before moving to Seattle in 2019 for the Microsoft position.

Sampson had also reinvented herself physically in Chicago. In 2013, she shed 100 pounds while training for an Ironman competition she finished in Cozumel that year. She documented her progress on social media, then started a training program for other Black women inspired by her journey. She also helped grow the Black Triathletes Association’s presence at the Chicago Triathlon, joined by her fellow “road dogs” in Chicago’s Major Taylor Cycling Club.

“I was widening the narrative again,” says Sampson, “proving that Black people do indeed swim, run and bike, and are stronger while supporting each other. There’s nothing in tech that compares to a triathlon or marathon. There’s no external force, no victim or race card. It’s just you and the race. It places everything else in perspective. Everybody has their Everest, but not many find out what that is because they don’t put themselves in the position to find out.”
Detecting and identifying patterns in chest X-ray images of COVID-19 patients are important tasks for understanding the disease and helping physicians make differential diagnoses and determine treatments that may be life-saving. Given the novel coronavirus’s recent emergence, however, improving this process is hindered by the relatively small number of COVID-19 X-ray images publicly available to scientists.

To address this challenge, a team from the health informatics program in the School of Computing (SoC) is contributing key findings to an international task force of scientists and radiologists working to assemble an open-access database of COVID-19-related medical images and supporting clinical information for use in education and research.

“Given our research agendas in this area, we were thinking ‘How can we help?’ Our project was driven by that spirit of solidarity,” says Daniela Stan Raicu, associate provost for research and co-director with fellow SoC professor Jacob Furst of CDM’s Visual Informatics and Data Analytics Group.

The project, initiated in spring 2020, is led by Mirtha Lucas (CDM MS ’16), a PhD candidate in computer science, who is collaborating with Raicu, Furst and Miguel Lerma, a mathematics researcher at Northwestern University. Their work is documented in a paper, “Heatmap Template Generation for COVID-19 Biomarker Detection in Chest X-rays,” which won first place in the COVID-19 category at the Institute of Electrical and Electronics Engineers’ 20th annual Bioinformatics and Bioengineering Conference last fall.

The team started with a dataset of 5,910 chest X-rays of patients reporting COVID-19 symptoms. Their goal was to create a machine-learning model able to quickly detect four possible conditions: normal (healthy), bacteria, virus (not COVID-19) and COVID-19, thereby providing physicians a consistently reliable second opinion in making assessments. The patterns identified serve as biomarkers for a given disease. They retrained a neural network, implementing artificial intelligence algorithms and computer-aided diagnosis systems to generate heat maps that reveal telltale patterns in X-rays.

One significant finding was that some regions of the images have a larger impact on the classification of each of the medical conditions, and those areas are relatively consistent across the images of each class. Their consistency in location and appearance makes them good candidates for “templates” indicating where, and what structures, to pay special attention to when looking for a particular disease.

The resulting patterns also correlate with reports of COVID-19 affecting organs besides the lungs, particularly in high-risk patients with pre-existing conditions. “The consistency of those patterns helps us build better tools to provide more information to physicians, not only to help them make a diagnosis, but also assess if the disease is affecting other organs,” says Lucas.

To further verify their results and determine if they’re more broadly generalizable, the team is running other datasets through its model and investigating different types of neural networks. Those results will be added to the paper, which Lucas was invited to submit to Transactions on Bioengineering and Bioinformatics, an international journal.

“We want to see how stable and robust these patterns are,” says Raicu, “and we are already on the path of showing that.”
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