

The Jacobs Institute Newsletter

A Dose of Medical Innovation

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AN EXCITING YEAR

The JI **launched the i2R (Idea to Reality Center)** to accelerate the development of vascular medical devices, and announced the first two projects. UB Jacobs School of Medicine and Biomedical Sciences students peered into 'The Future of Medicine' at a JI-hosted panel of Buffalo's medical visionaries. The JI team grew, with the **hire of five new employees**.

JI programs and services drew over 500 physicians, sales representatives, engineers, and executives from around the globe to Buffalo for our training programs and engineering services.

Known for our leadership in **3D printing**, the JI expanded these capabilities over the year. JI team engineered additional mechanical properties into the models, to improve their performance for more accurate device testing that the JI conducts for start-ups and established medical device companies.

JI's relationships with both **Kaleida Health** and **University at Buffalo** continue to strengthen through concrete collaborations. These collaborations include:

- Joint JI summer internship projects with the UB School of Engineering and the Center for Computational Research.
- Finance Academy project with the UB School of Management.
- Live case broadcasts of electrophysiology procedures, such as pacemaker implantation, with Kaleida Health to sites around the globe, including Africa.

We look forward to another year of exciting developments!

See our list of Top Moments of 2018, below.

i2R Launch: Accelerating Innovation to Save Lives



The biggest news of 2018 happened in March, when the JI announced the launch of its [i2R, or Idea to Reality Center](#), a vascular medical device proof-of-concept center, that will bring life-saving interventions to market sooner. The JI also announced its partners that will assist in navigating the regulatory path, engineering medical devices, and providing data analytics expertise. The i2R's first two projects were revealed, showcasing a collaboration project with Moog Inc. and an innovative medical device with Silicon Valley-based company, Spinnaker.

Jl's Chief Executive Officer, Bill Maggio, said, "In keeping with [The Future of Medicine](#) book, the JI is launching its i2R, to accelerate future innovations in the treatment of stroke and heart attack, which are devastating the WNY community at rates higher than both the New York state and national average." Maggio added, "One of our goals is to spin out start-ups from the i2R and encourage them to stay and create jobs right here in Buffalo. There is a reason why Buffalo has raised its visibility as a desirable destination for start-ups. The JI plans to leverage that reputation and the entrepreneurial ecosystem."

The JI is grateful for the support of Empire State Development, James H. Cummings Foundation, Stanford Lipsey Philanthropic Fund, The Frank L. Ciminelli Family Foundation, The Gerald and Sandra Lippes Foundation, The John R. Oishei Foundation, The M&T Charitable Foundation, The Margaret L. Wendt Foundation, The Roche Foundation, and The Seymour H. Knox Foundation.

The event garnered significant coverage in local print and TV news.

[Watch a video](#) that simplifies the JI's i2R innovation process:



The Future of Medicine is in Buffalo



L to R: Bill Maggio, JI; Josh McHugh, Attention Span Media; Dr. Khurshid Guru, Roswell Park Comprehensive Cancer Center; Dr. Stephen Schwartzberg, UB Jacobs School of Medicine and Biomedical Sciences; Dr. Michael Cain, UB Jacobs School of Medicine and Biomedical Sciences; Dr. Norma Nowak, UB Center for Bioinformatics and Life Sciences; Cletis Earle, Kaleida Health; Dr. Jason Davies, JI; Michael Springer, JI; Dr. Adnan Siddiqui, JI.

Hosting over 150 medical students from University at Buffalo's Jacobs School of Medicine and Biomedical Sciences, was a natural segway to educate and inspire the next generation of physicians, and continue the momentum from the Jacobs Institute's (JI's) book 'The Future of Medicine'.

The JI invited first and second-year med students to hear how medical innovators from the medical school and medical campus are shaping the next quarter-century in medicine and health care.

Bill Maggio, JI CEO, moderated the event and welcomed the speakers and med students. Attendees heard from JI chief scientific officer, Dr. Nick Hopkins, and JI chief medical officer, Dr. Adnan Siddiqui, about medical innovation and the future of medicine. Josh McHugh, a futurist and editor in chief, Attention Span Media, shared how the book was created.

Finally, attendees heard from innovators at UB's medical school and other institutions, Kaleida Health, Roswell Park, and the JI, who touched on themes in 'The Future of Medicine', namely: teaming up and incubating innovation, mixed reality, surgical robotics, forecasting disease with data, human genomics, patient data security, and additive manufacturing. The engaged audience also asked questions of the panelists, gaining insight into the developments in Buffalo.

Watch this video about the event:

<https://animoto.com/play/5XggpMYGp8KbiWioPnXDIA>

Watch the entire event at: <https://youtu.be/okaL1dA3mpQ>

JI & GVI Broadcast Surgeries to Africa

In an ongoing arrangement, the JI and Kaleida Health's Gates Vascular Institute (GVI) partner with a medical device company and broadcast two live cardiac surgeries to 10 African countries on a bi-monthly basis. Thus far, five broadcasts of two cases per broadcast are already complete, with more in 2019.



In each case, a Buffalo surgeon has the chance to train 30 physicians about the techniques used at the GVI to implant pacemakers, which regulate an abnormal heart beat. Dr. Chee Kim, walks the physicians through the step-by-step process he employs for each cardiac surgery. The African physicians watch the procedures from sites throughout the continent, including Botswana, Ethiopia, Ghana, Kenya, Nigeria, Rwanda, South Africa, Tanzania, Uganda, and Zimbabwe.

Dr. Kim is a cardiologist with Great Lakes Cardiovascular. He is also director of the electrophysiology laboratory at Erie County Medical Center.

Additionally, Dr. Kim serves as director of electrophysiology innovation and clinical integration for the GVI and the JI.

The JI and GVI will continue to partner with the medical device company to expand its training reach and to educate more physicians about the life-saving techniques used in Buffalo that could transform care in other countries.

This opportunity to transform care through broadcasting technology is made possible thanks to grants from the James H. Cummings Foundation and New York State's Empire State Development.

Leadership Blooms During Summer Internship



This summer, the Jacobs Institute (JI) had the good fortune to hire six talented interns, from diverse fields. All the students hailed from Western New York and brought energy and creative problem-solving to their challenging projects. Each project was key to moving the JI forward.

Kristen Benson, studying biomedical engineering at University at Buffalo (UB), created a 3D-printed replica of a heart and wired it to mimic the electrical signaling problems associated with atrial fibrillation (AFib), which is critical to JI's ability to create realistic models for industry and physicians attending clinical immersion programs to understand the intricacies of deploying pacemakers.

Liam Christie, studying electrical engineering at UB, evaluated and acquired external sensors applied to JI's 3D-printed models of brain arteries to provide measurable data. Liam also set up and installed software to provide clearer, user-friendly data for industry and start-up customers conducting product testing sessions at the JI.

Rachel Loecher, a UB master's of business administration student, worked with JI industry partners to determine the feasibility of expanding distribution of 3D models for clinical training, product testing, and surgical planning.

David Maher, biomedical engineering student at Duquesne University, collaborated with JI engineers and UB professor Vojislav Kalanovic, PhD. Together, they envisioned and created product specifications for a next-generation 3D printer that would meet the need for more accurate, cost-effective, clinically-relevant models.

Tom Mancuso, from The Ohio State University studying biological engineering, constructed and used equipment to test the robustness of the 3D-printed models, which is crucial to ongoing improvement of JI's models for training programs and device testing.

Maya McDaniel, a masters student in data science at UB, worked with UB's Center for Computational Resources director, Tom Furlani, PhD, and JI's

research director, Jason Davies, MD, PhD, to analyze a large, publicly-available data set in order to create a model for predicting stroke in patients. At 76% accuracy, the model was a great step forward and also established a new JI partnership with CCR to strengthen the predictive model.

To watch the interns' presentations, click here:
<https://youtu.be/Wp3Sx29hSDg>

For more information on the internship program, click here:
<https://jacobsinstitute.org/programs-services/internships/>

Inspiring Young Minds Around WNY



More than 500 students learned about heart attack and stroke, engineering, STEM & healthcare careers, and more

Click below to watch a video about our Brain Boot Camp program, which is meant to educate and inspire young minds!

[Jacobs Institute Brain Boot Camp Video](#)

The Jacobs Institute mission is to accelerate the development of next-generation technologies in vascular medicine through collisions of physicians, engineers, entrepreneurs, and industry.

Our vision is to improve the treatment of vascular disease in Western New York and the world, while fostering local economic development, and honoring the memory of Lawrence D. Jacobs, MD.

Located in the heart of the Buffalo Niagara Medical Campus (BNMC) in downtown Buffalo, the Jacobs Institute is positioned between University at Buffalo's Clinical and Translational Research Center (CTRC) and Kaleida Health's Gates Vascular Institute (GVI).




The JI is uniquely positioned to foster collaboration of our key partners. We have the right people in the right place at the right time.

Come innovate with us.

Please visit [the JI web site](#)

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