

The Jacobs Institute Newsletter

A Dose of Medical Innovation

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As the JI jumps into 2017, excited to build on our momentum, it is important to take a moment to reflect on our progress in 2016.

FAST FACTS ABOUT 2016

The JI hosted over **325** physicians, engineers, sales representatives, senior executives, hospital administrators, federal regulators, and more in its clinical immersion programs. This represents almost **800 hotel night stays in Buffalo**.

We worked with over **15 entrepreneurs and start-ups** from around the globe, including Israel, Ireland, Germany, and the U.S. to test their technologies.

The JI was designated as a Stratasys **3D Printing Center of Excellence** in Health Care in April, and procured a top-of-the-line printer owed to this relationship and a generous grant from the **James H. Cummings Foundation**.

We added **four additional service offerings** to industry clients: device testing, bioskills training labs, remote live surgery broadcasting, and video production.

Over 700 middle and high school students participated in the JI's brain boot camp educational experiences. They learned about heart attack and stroke signs and symptoms, as well as their treatments.

JI Designated as a Stratasys 3D Printing Center of Excellence in Health Care

Cummings Foundation Grant Brings Hi-Tech 3D Printer



(Pictured Left to Right: Charles Kreiner, James H. Cummings Foundation; Bill Maggio, JI; Dr. Nick Hopkins, JI; Dr. Vijay Iyer, GVI; Scott Rader, Stratasys)

On April 26th, the JI and Stratasys, an international 3D printing and additive manufacturing solutions company, announced the designation of the JI as a Stratasys "3D Printing Center of Excellence in Healthcare". The Jacobs Institute was able to leverage generous grant support from the James H. Cummings Foundation to obtain the Stratasys Connex 3 500 printer as part of its partnership with Stratasys.

The JI uses Stratasys' 3D printing technology to create lifelike 3D-printed vascular flow models created from actual patient CT scans that can be used to train medical personnel, test medical devices, and help physicians plan complicated endovascular procedures. Endovascular procedures use the body's blood vessels as the conduits through which medical devices are delivered to the heart or brain. Stratasys, in turn, will gain valuable clinical and engineering feedback about its printers and materials.

The Buffalo News: <http://bit.ly/1VSwxHq>

JI Hosts 3D Printing Open House with Stratasys

Attendees Gather to Hear from JI Engineers



In October, the JI hosted a 3D printing Open House welcoming experts from all over the country including Columbia University, Duke University, and Johns Hopkins University. Our team of engineers shared insights into the evolution of our 3D printing process and procedures, as well as insights gained over the past few years, and where we hope to go in the future. The audience was highly engaged and wanted to learn from us, as they were just beginning or considering programs at their own institutions.

Regarded as experts and partners, the JI prepared a number of deliverables for Stratasys, including a webinar on the use of 3D printing in education and training (<http://bit.ly/29jL4eY>) and a white paper explaining how hospitals can use 3D printing for surgical planning: <http://bit.ly/2hcjq1A>

Summer Internship Unlike Any Other

Program Continues to Develop Young Leaders



The Jacobs Institute's "First-Gen" and "Next-Gen", nine and four-week summer internship programs offered undergraduate college and high school students the opportunity to work and learn in a multi-disciplinary clinical environment.

This year, our five stellar First-Gen interns led projects that ranged from

getting the JI's balloon catheter equipment up and running to creating a 3D printed model of the brain's Circle of Willis that can be used in the JI's training and education programs.

The four-week "Next Gen" program provided seven high school interns with a set of lectures on vascular diseases and treatments from physicians and exposure to a number of different people and places on the Buffalo Niagara Medical Campus. Each intern chose a topic and prepared a five-minute TED-talk-style presentation delivered to their colleagues.

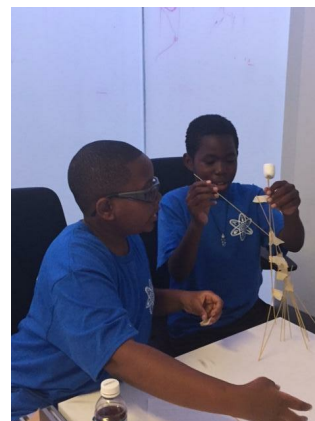
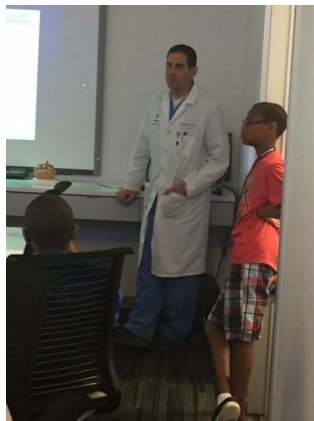
To see the **First-Gen Intern Final Presentation**, click here: <http://bit.ly/2c4t2dw>

To see one of the **Next-Gen interns' presentation**, click here: <https://www.youtube.com/watch?v=fvVO3SPrtEI>

One of our summer interns produced a **documentary about the internship**, click here: <http://bit.ly/2bOfouT>



BNMC Wide Summer Camp



The Jacobs Institute was proud to be part of the first-ever campus-wide STEM Summer Camp for middle and high school students from the surrounding neighborhoods in partnership with Buffalo Manufacturing Works, the Buffalo Niagara Medical Campus Inc., and the University at Buffalo's NYS Center of Excellence in Bioinformatics & Life Sciences.

While at the JI, the students learned how blood circulates through the body and how to calculate their own heart rates. Dr. David Zlotnick, an interventional cardiologist, talked to them about peripheral arterial disease and the ways that they can prevent it through healthy life styles. The students spent some time with Paul Dressel, a medical illustrator; Mary Ann Kedron, research director at UB Neurosurgery; and Carrie Owens, a medical editor, talking about non-traditional careers in health care.

The Next-Gen interns taught them how to use the Mentece endovascular simulator to retrieve clots in stroke patients. Their day at the JI was capped

off with the Marshmallow Challenge, lead by Infonaut founder and CEO, Niall Wallace.

Jl Meeting Services Hosted Three Conferences



The Jacobs Institute Meeting Services division hosted over 200 physicians and members of the medical device industry in Jackson Hole, Wyoming, for three successful failure analysis conferences. The conferences are designed such that physicians and industry can provide honest, objective assessment of failures of judgment, equipment, and technique that can lead to improved results in medical treatments. It is a unique opportunity for device manufacturers and their users-physicians-to discuss problems and, perhaps, influence future improvements in such devices.

Showcased Economic Development in WNY at Governor's State of the State



The Jacobs Institute was invited to exhibit at Governor Cuomo's State of the State address in January 2016. The JI represented the Western New York projects funded by the Regional Economic Development Council. The focus for the exhibits, comprised of 9 other regions in NYS, was on technology and innovation. The JI was represented by Pam Marcucci, director of program development & outreach; Allison Kupferman, manager of communications & outreach; and Karen Meess, biomedical engineer, JI/CUBRC. The JI showcased Mentice medical simulation technology, as well as 3D printed brain artery and cardiac artery models. We discussed how we use these 3D printed models for physician training, surgical planning, and medical device testing.

Resident Simulation Program



Elad Levy, MD, MBA, FACS, FAHA, medical director of neuroendovascular services at the GVI and chair, department of neurosurgery at the Jacobs School of Medicine and Biomedical Sciences at the University at Buffalo (UB), along with the Jacobs Institute, held a one day Resident Simulation Program in January 2016 that was endorsed by the Congress of Neurological Surgeons (CNS) and supported with an education grant from Medtronic. Eleven neurosurgery residents came from eight residency programs around the country to carry out advanced neuroendovascular procedures and deploy medical devices in a simulated environment that is second only to a catheter laboratory. Other faculty included Drs. Adnan Siddiqui, Kenneth Snyder, and Erol Veznedaroglu. Dr. Levy presented attendees with certificates at the conclusion of the program.

The Jacobs Institute mission is to create the next generation of medical technology to improve the treatment of vascular diseases--such as heart attack and stroke--in Western New York and beyond.

The institute was named in memory of the late 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).



As such, the Jacobs Institute is uniquely positioned to foster collaborations of the best minds and collisions of new ideas.

We invite you to **come innovate with us.**

Please visit <http://www.jacobsinstitute.com>

Sincerely, The Jacobs Institute

