End of Year Report
2016-2017
Message from the Director of iCREATE, David Ecker

I am excited about the iCREATE brand within the Division of Information Technology. This focus is on our core mission of engagement, creation and innovation, empowering and offering the SBU campus a central point where all students, faculty, and staff can take their fantastic ideas and bring them to reality. iCREATE is evolving to support the campus initiative, and the exciting success stories that have occurred this year are kudos to the great mind at Stony Brook University. Our work to partner with these minds is a testament to how our services are needed for the present and future.

This second year has seen excitement that has pushed us Far Beyond our expectations, and has kept us on a path that encourages innovation and entrepreneurship through hands on experimental learning. This excitement rings true with our vision to provide the ideology and tools for fostering institutional collaborative endeavors sparking creativity, innovation, and ultimately redefining technological boundaries.

The excitement from this year came out of many successful events such as the Pop Up locations, the How Did I Do IT series, WolfieTank and Evening of Innovation that have been embraced by the Campus community and opened additional areas of collaboration.

I want to give a special thanks to our partners at Fidelity; their gracious donation has helped us bring Innovation programs to more areas of the campus.

This year we have seen the community grow through the clubs of CentriSeed Innovations building a bicycle to power a light bulb, and 3Diatrics helping children in the hospital. We also worked with the Stony Brook campus on other events to bring innovative ideas beyond our borders to school districts, libraries, and health science center events.

We continue to listen to all the members from our focus groups and informal conversations. We found there was a need for virtual reality and Self Service 3D printing, so we listened to our members to implement the vHub which is the virtualization facility. We also changed our 3D printing setup to add self service configurations and train the community on how to utilize them. This became a catalyst for us adding a skills based badging program and success stories that our members wanted to share.

I would like to thank the Division of Information Technology, College of Engineering and Applied Sciences, College of Business, the VP of Economic Development and IREP for their partnerships and contributions to make this undertaking a success. Finally, I would like to thank the dedicated student staff for their hard work, and for being a pleasure to work with. I am honored by their enthusiasm and energy which makes everyday a pleasure to be at iCREATE.

Thank you, for making this another great year.
In 2017, the Research and Technologies department underwent a rebranding process and was reintroduced to the Stony Brook Community as iCREATE. This name better brands us within the Division of Information Technology as well as within the campus. Our focus on helping the campus mission through providing innovative services sets us apart and binds us to a future that is bright and new. Spaces like ours are happening all across the country in higher education institutions, but what makes iCREATE unique is the leadership of student experts employed in our spaces. These students are cross disciplined and work hard to help all of our members excel. Stony Brook students, staff, and faculty are inspired and impressed that we are such a unique place on campus.

This past year, iCREATE has worked to align itself to support the campus goals of High Quality Education, DoIT priority of customer engagement and experience, as well as offer a hands on learning facility that does exist on campus.

We are still in the process of rebranding, as it is a long process. Rebranding has helped us to better recognize and focus on these goals. However, we have taken many great strides to ensure our new brand is recognized around campus. Our staff and graphic designers have worked hard to create new posters and signs; marketing materials have been ordered; our website and social media accounts have been updated and our staff uses these platforms to further announce the changes to the campus.

Our goal for rebranding is to further align our spaces and objectives with the campus goals, reach a broader audience of students, faculty, and staff. Present to future innovators an area to provide with the resources necessary to learn, think, and create.
iCREATE and WICS (Women in Computer Science) collaborated together, hosting a workshop about Virtual Reality, the new innovative technology that allows users to have a 3D experience in sight. WICS is an organization on campus that stands for Women in Computer Science, which fosters equal opportunity for women in the math and science field.

Our very own iCREATE staff member Marcin Kielkiewicz demonstrated how to build a VR scene using Mozilla A-Frame software and taught a group of students how to develop a scene. When asked what his thoughts were, he stated, “The workshop was a success! I taught people how to create a scene and add objects, and then add interactive commands and animation to it.” Kielkiewicz said the experience was very rewarding and said everyone collaborated together to write the code. It was a hands on process combining code with real time work.

The goal of the Mozilla A-Frame Workshop was to give students a basic understanding of Mozilla A-Frame software, which is a framework that allows people to create virtual reality experiences using HTML. Students were taught the basics of how to use the framework and then tinkered with it independently while using the VR headsets provided to view their creations in a virtual reality space.

Students used the opportunity to further their knowledge on virtual reality and building. The Vice president of Women in Computer Science, Yuliya Astapova, agreed with the remarks. She stated, “The workshop was great! We had good attendants and students were very engaged.” She then went to say how the VR goggles allowed them to see what they were coding and showed appreciation to the iCREATE for making it possible.

iCREATE inspires many innovators to foster a community based on eagerness to learn and we are an equal opportunity provider for the curious. Keep on the lookout for more events, as we invite the curious to come see what we are about.
This event was sponsored by Fidelity for all innovators and collaborators to come together to share and display their exhibits from a generous donation for Fidelity. Of our 24 exhibitors, we had 11 divisions, each centered around one table with a handful of leads: Dr. Patricia Mele and Sean Cavanaugh, Anurag Purwar, Gerrit Wolf, Phillip Baldwin, Margaret Schedel, Lily Cushenbery, Department of iCREATE with 2 tables, Global Innovation team, and the 2016 Hackfest Winners.

Each lead presented:
- Dr. Mele displayed a baby ribcage
- Anurag Purwar displayed many different kinds of robots and tested his latest application; MotionGen
- Gerrit Wolf displayed new sports technology through virtual reality goggles
- Phillip Baldwin displayed EEG technology through the use of VR goggles and presented a piece of musical technology processed through a computer
- Margaret Schedel displayed an app created by Stony Brook University for the Smithsonian that exhibits the deep carbon cycle in a straightforward and entertaining way that children can understand
- Lily Cushenbery displayed her research related to leadership and people management
- iCREATE displayed virtual reality goggles that are currently available in the vHub on campus and they displayed a creativity table displaying some of the workshops iCREATE has hosted in the past
- Global Innovation displayed their plan for sustainable living on campus which they intend to bring through the use of a community garden on campus
- The Hackfest Winners displayed a robotic hand directed by the user's hand in a glove which translates the information to the hand and produces identical movement

For the future, we will continue the Evening of Innovation as a series for the years to come as a opportunity for networking and collaboration through innovation across the Stony Brook campus.
WolfieTank is a pitch competition similar to the NBC hit show Shark Tank.

Our Featured Presenters are:

- **Chang Hyeon Lee and Jong Jeon** - The Green Pillow, an eco-friendly pillow filled with used straws intended to provide sound sleep to refugees, the homeless, and people living below the poverty line.
- **Chelsea Marks** - Belt Buddies, a non-profit organization that creates cushioned seat belt covers that take the weight off of a seat belt pressing into the tender skin of a Breast Cancer patient who has recently been through a surgical procedure.
- **Rebecca Kranz** - a drone used to chase geese off of lawns, fields, beaches, or any other area unwanted geese congregate.
- **Salvatore Farrugia** presented the Long Island Social Sports organization which runs coed sports leagues to give adults the opportunity to meet people, get involved, be active, socialize, and unwind. This company has served over 2,000 adults and grossed over $100K since its inception in 2013.
- **Varun Shivakumar** presented Fanuble, a new social media platform that’s main focus is interaction between personalities and fans. It utilizes a points system, live multi-threaded comments, and fun, active communities.
- **Rina Inaba** presented her bakery concept of “The Sweet Tooth” -- a bakery offering a wide range of sweets made with Xylitol, which has cavity-fighting benefits, as a sugar substitute. Rina plans on using xylitol to create many baked goods as an alternative to traditional baked goods that result in an unbalanced pH level in the mouth.

Wolfie Tank featured three judges: James Keane, Aaron Foss, and Derek Peterson. James Keane is the Global Director of Disruptive Growth Exploration at the world's largest global brewer, Anheuser-Busch InBev is responsible for investigating, testing, and commercializing new technology and business models with the capability of disrupting ABL. Aaron Foss is currently working on his own startup called Nomorobo and is responsible for stopping up to 85 million unwanted and illegal robocalls from reaching consumers since launching in 2013. Derek Peterson is the CEO and Founder of Digital Fly, a software product company focused on creating social media awareness tools for safer schools and communities. He also co-founded CBD Inc. in 2003 to assist emerging technologies in libraries and public schools, where he developed an award-winning package for securing and managing public computers.

Wolfie Tank also featured a raffle and was a great space for students, staff, and other innovators to network, communicate, and collaborate.
We continue our series of How Do I Do IT, both on and off campus organizations, and groups from our local community on Long Island. We gave them tours and interactive activities with librarians, families, and students of all ages. A sample of these tours and demonstrations this year are:

- Science and Technology Entry Program (STEP)
- Ward Melville Heritage Organization (WMHO)
- Family Weekend
- Local Librarians from all over the Suffolk County Library System
- Philip Baldwin, a Professor at Stony Brook
- Doreen Aveni’s ITS 101 course
- Rosemarie Alessi’s 101 course
- Admitted Students Day

Some events that we did on and off campus offered interactive tables, featured speakers, training sessions, and an experimental live streaming. The following are some events we did:

- How Did I Do IT with Dan Russell
- UP Mini training
- Maker Faire with Barnes and Nobles
- SUNY iCREATE Live
- WISE Engineering Day— 3D Printing
- AR Sandbox with 4th Graders from Blue Point Elementary School
- VR Workshop at Port Jefferson Library
- Bring Your Kid to Work Day at the Health Science Center
CentriSeed Innovations formally known as Global Innovation Team, is a student run nonprofit organization from Stony Brook University. Their goal is to utilize the skills of Stony Brook University students to complete community improvement projects on campus and in the local area, as well as domestically and internationally. In the picture to the left, you can see that they developed a bike generator that they displayed at Earthstock.

One of our first projects in iCREATE this year was the AR Sandbox, which stands for Augmented Reality Sandbox. As a response to a partnership with Geosciences, iCREATE staff member Lukas worked with Daniella from Hofstra to create the AR Sandbox. The project was to build a sandbox with 2000 pounds of sand, implanted a computer, and projector system. In a specific configuration to allow the users an interactive experience. Educating them on contour lines, terrain height, and water run off. This is currently being used by the GeoSciences department to teach an introductory class.

Over the summer a project that was developed was called, “Madagascar Box” that iCREATE staff members Kelsey, Maddie, and Naveen worked on. The Madagascar Box first started off as shipping crates that held computer servers. The team used hammers, screwdrivers, and a crowbar to get them apart without any power tools. When the boxes were apart, the team would recycle the scrap wood that weren’t going to able to be reused. They had attached piano hinges to the crates to make a trifold booth. Today, the Madagascar Box are used with green screen apps and software as well as Padcaster to present or film projects.
Julian Kingston, a senior Electrical Engineering major and the founding member and President of the Global Innovation Team (now known as CentriSeed Innovations), has a special place in his heart for the iCREATE Innovation Lab. He found iCREATE while he was going through a rough time in his college career when he struggled with his major.

“I was thinking, ‘I have no idea why I’m in college right now.’ I would’ve dropped out of school. I had no motivation, incredibly hard classes. I didn’t enjoy it the way I thought I would. Becoming an e-board member, being president, having people depend on me, having this responsibility, finding iCREATE’s Innovation Lab – all this gave me meaning to my college experience, and it gave me a purpose to me being here. I thought I was wasting my time in my major.”

iCREATE’s Innovation Lab was where the members of CentriSeed Innovation made their first moves and projects. They have since worked on Roth Pond’s restoration, the Nobel Halls sustainable garden, campus-wide waste management, a bicycle generator, and many others. They have grown on campus and helped to improve the community. “The Innovation Lab was the space of choice to build and work on projects because of it’s open, welcoming environment. There are not many places like that, especially on campus, that will support us. They supported growth, failure, and allowed us to keep trying and working.”

Since it's inception, CentriSeed Innovation has grown from his original group of 3-4 people in his sophomore and junior year to an average of 30 people who come to each general body meeting now. “It's a full time job. As Julian graduates this May 2017 with his Electrical Engineering degree, he is excited and confident about his plans moving forward.
Dr. Yizhi Meng, an assistant professor and researcher for Stony Brook University, could usually be found working in the Heavy Engineering Building. She studies how to engineer 3-D micro-tumors of 50,000-80,000 cells, also known as “cancer on a chip”, and stumbled across iCREATE in Fall 2016 and was able to produce a few custom-designed well plates for use in her laboratory.

By growing multiple micro-tumors at once, you could perform drug screenings of cancer drugs. Using micro-tumors keeps it as realistic as possible, instead of animal studies. This in-vitro model is less expensive, removes animal variation as a potential error, and allows the trial and test of hundreds of drugs at a time. In short, they aim to create a better target to test different types of drugs, and this requires constant use of a lot of well plates to grow cancer cells on. Traditional trays with these wells are made with a hydrophobic polystyrene, a waterproof hard plastic, with a flat bottom. While these can easily be bought from about any laboratory item supplier, the bottom of the wells make it a slippery surface for the cells to grasp onto and they often slip in transport. “This sliding interferes with imaging, and that leads to other difficulties” says Dr. Meng.

Dr. Meng heard of a 3-D printing service on campus. At a strong STEM research campus like Stony Brook University, 3-D printers are not unheard of, however, almost all of them are for private departmental or laboratory access use only. Dr. Meng got in contact and came to iCREATE director David Ecker with a question: Was it possible to produce a tangible and simple solution?

Giancarlos, one of our iCREATE staff members, assisted with Dr. Meng and her laboratory staff. After several iterations of rendering the details and dimensions of the file, the print of the trays took about one day to complete in our facility using the Form 2 3-D printer. This printer is unique because it uses resin to produce a detailed, denser, and smoother end product. There were two versions designed that differed by the shape on the bottom. The two indentations are shaped as ice-cream cones and round hemispheres; these allow the cells to stay stable in the center during transport without sliding.

Currently, the resin material that the trays are printed with is still being tested for its biocompatibility but so far, Dr. Meng says they have been working well. “The material is not killing them, and the cells are healthy. It appears to be biologically inert.” The well plates can be sterilized for reuse when needed.

“Now, I have so many ideas of what others things to try to make,” Dr. Meng said, “It’s like bypassing the big suppliers. An idea can move from a CAD file to a physical object.”
Compared to last year, we have seen a huge demand for 3D printing. We weren’t able to offer the hands on knowledge which is the core to the iCREATE mission through our existing offers. This year we decided to start a self service 3D print training, which allows members to create 3D prints. This is a great resource at Stony Brook University because it is a free service to the community. Offering it as a free service, opens an interest for members to participate in our training when creating their own prints.

This service has opened our involvement to interesting projects such as, research graduate students coming in to print out gears on our UP Mini printers and Lulz Bot Taz 5 3D printers to compare the different geometries. Another interesting project is a student came in to 3D print a whistle, this shows how iCREATE supports diverse majors including music.

When members are trained for this program, they can also work to receive a 3D print digital badge. In one semester, we trained over 150 members and over 200 prints were made. We provide 2 days a week of training on Thursdays and Fridays. Our training better equips the members to 3D print themselves.

With our high demand for 3D printing in our facilities, we are looking to expand our UP Mini printers so more members can be trained.
Spring semester we introduced a new badge program that allows iCREATE members to receive a digital skill badge in different facilities. There are 3 badges that we are giving out:

- **3D Self Service**: This badge can be earned in the Innovation Lab. This badge is given to Stony Brook innovators who have been certified for the 3D self service machines. To receive this badge, students need to have attended a 3D self service training workshop and demonstrated competency when using the 3D self service machines. This competency includes setting up the printer and creating an original 3D print design.

- **Idea Generator**: This badge can be earned in the Innovation Design Studio. This badge is given to Stony Brook innovators who have demonstrated knowledge and competency of brainstorming, use of the circuit scribe and use of the 3D Doodler. To earn this badge a student needs to have the drive to innovate and generate ideas.

- **Visualizer**: This badge can be earned in the Innovation vHub. This badge is given to Stony Brook innovators who have a passion for virtual reality technology. To receive this badge, students need to have utilized the HTC vive with the Google tilt brush, used the digital display wall, and developed an original VR 360 photo and visualized it.

iCREATE members will receive a digital badge that can be displayed on LinkedIn, resumes, blogs, websites, etc. These badges help students connect these accomplishments to the job market by allowing employers to recognize skills obtained by the student.

They will earn their badges by visiting the iCREATE spaces, learning the skills available in each space, and having certified staff verify that you have completed the skill. Once a skill is completed, the staff member who verified you will have you fill out a Google form. This form is sent to the iCREATE Certification Team, who will then send you an email containing the badge.

*We hope to see you get certified!*
We had extended our facility location to the Engineering building room 222, calling it the Innovation Design Studio. This new location was open as an innovative idea creation space. It was transformed from a former CoLA space that was lacking excitement, creativity and allowed for just one group.

The Design Studio now offers:
- Multiple groups to meet and work together comfortably in a comfortable and creative new space.
- Multiple group seating arrangements, each with easy access to outlets, and a computer, one hooking up to a SMART board.

Not to long after, we extended our facilities even further and then came the Innovation vHub, which is located in the Psychology A building, room B021.

This was a place for students to focus on visualization through innovation and new technology.

The vHub offers:
- A video wall
- A 3D TV
- HTC Vive

It provides a space for new emerging technologies that not all students or faculty have experienced yet.

Now we end the year, with 3 facilities that are open to the community on campus allowing them to find different ways to explore their innovative minds.
We would like to thank all who have helped to make this vision possible.

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Think.
Create.
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