The Johns Hopkins Technology Ventures (JHTV) newsletter typically highlights groundbreaking innovation, emerging startups and impactful corporate collaborations. In addition to stories such as those, this issue includes our FY17 Annual Report to provide an overview of Johns Hopkins' maturing innovation ecosystem and its impact on the institution, Baltimore and lives around the world.

Start here. That all-encompassing theme reverberated across Johns Hopkins Technology Ventures’ efforts to bring the benefits of discovery to the world in fiscal year 2017.

Below, we proudly present the many ways JHTV has stimulated the innovation ecosystems at Johns Hopkins and in Baltimore, building their reputations as ideal places for innovators and entrepreneurs to develop tomorrow’s solutions for today’s biggest challenges.

In FY17, JHTV received 549 invention disclosures and executed 174 new agreements. We believe these results — the most invention disclosures received and most licenses and agreements executed in JHTV history — reflect our commitment to customer service.
Student entrepreneurship at Johns Hopkins is surging, and the amount of interest in Johns Hopkins Technology Ventures’ (JHTV) FastForward programming is proof.

From 2016 to 2017, applications to the Ralph S. O’Connor Fund and Summer Undergraduate Entrepreneurship Award more than doubled (35 to 75). Furthermore, 2,300 students attended Johns Hopkins entrepreneurial events during the 2016-2017 academic year.

“Demand is multiples of where it was a couple years ago,” JHTV head Christy Wyskiel recently told CNBC in July.

In response to this increasing interest, Johns Hopkins University President Ron Daniels, Provost Sunil Kumar, deans from each of the schools and senior leadership at JHTV coordinated with student leadership to enhance the university’s support system for students interested in entrepreneurship and innovation. The work relied heavily on focus groups comprised of Johns Hopkins students already involved with the university’s existing programming.

The result is FastForward U, a collaborative, cross-disciplinary environment that acts as a resource for any undergraduate, graduate student or post-doc with a desire to experiment, innovate or start a business.

“Johns Hopkins students are going to start something someday,” Wyskiel says. “FastForward U provides experiential learning opportunities that empower students in their future endeavors — whether that’s starting a small business, technology company, non-profit organization or maybe even, a political campaign.”

Strategic direction

In August, Darius Graham, formerly the director of the Social Innovation Lab, became JHTV’s first-ever director of student ventures. He will have support from Kevin Carter, JHTV’s new student ventures coordinator and a Venture for America fellow. Together, they will build upon the groundwork established by Kasim Ahmad, another Venture for America fellow who served as JHTV’s first student ventures coordinator before taking a position with the Hopkins student-led startup FactoryFour.

“I’ve had the chance to meet undergraduate and graduate students from different programs working on an array of potentially transformative innovations,” Graham says, calling out an African bakery concept, a transportation app and a wireless sensor for monitoring air quality among others. “It’s really exciting to have the opportunity to encourage and catalyze students’ work.”

Before FastForward U, JHTV’s student outreach primarily focused on introducing students to the resources that FastForward provided them. Now, in addition to helping students navigate the opportunities at Johns Hopkins, FastForward U is developing longer term strategies that will enhance the university’s innovation ecosystem.

“One of the first things I am focusing on is how we can engage different schools and different programs and root this idea of innovation and entrepreneurship in all students,” Graham says.

With engineering students, opportunities for innovation and entrepreneurship may be fairly obvious. But what about the school of education, for example? Graham wants to empower these students to connect their research to technologies or programs that will help students learn or that increase teacher performance.

“No matter the school or department, I want to help students make connections between what they’re studying and the opportunity for entrepreneurship and innovation to solve challenges,” Graham says.

FastForward U resources

At the core of FastForward U will be the ample programming that JHTV and student groups across the university have organized, including Medhacks, 3 Day Startup, Pizza and Pitches, HopHacks and I-Corps.

These coordinated seminars, workshops and networking events have offerings for student innovators and entrepreneurs of all experience levels. As part of the learning experience, students will also receive mentorship and direction from the student venture coordinator, mentors-in-residence, alumni entrepreneurs and other advisors.

“These one-to-one interactions are immensely valuable. Students receive answers to specific questions, make connections within the Hopkins ecosystem and receive help identifying key external resources,” Graham says.

“FastForward U’s programming and mentorship give students ample opportunity to fully pursue the development of their innovative ideas.”

Just as FastForward U offers student-specific programming, it will have student-dedicated innovation hubs. In fact, many students and faculty have already begun seeing the recent additions of two student-dedicated innovation hubs.

In April, FastForward U opened its first student-dedicated space, FastForward U
Homewood, at the Wyman Building as a temporary student innovation hub on the Homewood campus. It provides student entrepreneurs with conference, co-working, and private meeting space. In 2018, this space will move to a building on the 300 block of West 29th Street, located across from R. House in Baltimore’s Remington neighborhood.

The new space will feature 9,000 square feet dedicated for student entrepreneurs to build their startups. The innovation hub will have conference rooms, co-working desks, open spaces for events and presentations as well as a maker space run by the Whiting School of Engineering.

For those studying on or near Johns Hopkins’ East Baltimore campus, FastForward U – East is now open. This innovation hub located in the Rangos Building near Johns Hopkins’ schools of medicine, nursing and public health will feature 3,200 square feet of office space, including co-working desks, private offices and a conference room.

“Both FastForward U – East and the future home of FastForward U – Homewood in Remington will be located near FastForward 1812 and FastForward R. House, providing opportunities for collisions with more established entrepreneurs that could benefit our students and their promising ventures,” Graham says.

Much like the library or student union, these innovation hubs are open to all Johns Hopkins students during daytime hours. In the evening, when official staffing is no longer in place, the hubs will be open to students who have registered with FastForward U.

“As they balance coursework and a budding passion for innovation, it’s important for our student entrepreneurs to have spaces where they can go at any time,” Graham says.

Creating a culture of innovation

JHTV doesn’t see student interest in entrepreneurship as an aberration. In her interview with CNBC, Wyskiel said, “(Students) understand it’s more likely they’ll create their own job than have a job from someone else for a long period of time.’

Graham intends to meet the needs of the growing number of students considering becoming entrepreneurs, helping them build a sustainable business or at least provide the fundamental understanding of how to do so in the future.

“I want students to know that Johns Hopkins wants to help them succeed as innovators and entrepreneurs,” Graham says. “My job is to create a culture among our student body that encourages them to boldly pursue their ideas for creating a better world.”

Innovation is essential to our culture at Johns Hopkins. Across our campuses, faculty members and students are eager to develop their ideas and discoveries and put them to use in benefit to society – here in Baltimore and around the world.

We welcome gifts of any size. We would be happy to discuss our range of giving opportunities and other giving options.

For more info, please visit http://ventures.jhu.edu/give/
On September 14, more than 100 entrepreneurs, investors and others interested in Baltimore’s startup ecosystem gathered at Brown Advisory’s Fells Point headquarters to meet the inaugural cohort of M-1 Ventures.

The first-year accelerator kicked off on September 5 and features five startups developing an innovative technology related to connected health and fitness: BurnAlong, b.Well, EduMD, MotionVibe and RoundTrip. Each of these emerging ventures aspires to empower people to get healthy, stay healthy and achieve wellness goals or to improve patient and financial outcomes and the efficiency of health care providers.

At the event, investor Paul Singh—who directs the accelerator along with another noted entrepreneur Tony D’Agostino—said each of the startups is beyond the “will it work stage” and are currently at the “how big will it be stage.” Each team is receiving mentorship from experts at Johns Hopkins, Plank Industries and the University of Maryland who specialize in the startup’s area of focus.

Additionally, M-1 startups received $25,000 in investment funding and have the opportunity to earn one of two additional investments based on ratings from their peers in the program. This peer-review model for awarding startup investments was introduced by venture capital firm Village Capital.

The M-1 cohort

**BurnAlong**

Challenge: People want to work out with their favorite instructors even when they can’t get to the gym

Solution: An online video fitness and wellness platform enables people to work out with top instructors across the country and their friends

Key stat: BurnAlong has more instructors than all its competitors combined

**b.Well**

Challenge: More and more people are turning to digital health services, but a lack of integration prevents more positive outcomes

Solution: An online platform that puts consumers at the center of their health care by simplifying access to health data, insurance and on-demand health services

Key stat: Over 86% of health care dollars are spent on conditions that are largely preventable

**EduMD**

Challenge: Typically, surgical residents don’t receive immediate feedback about their performance, potentially slowing development

Solution: MileMarker™ is an on-the-job, real-time assessment software for surgical training

Key stat: Hospitals at Johns Hopkins, Emory and Baylor have adopted MileMarker™

**MotionVibe**

Challenge: People have gym memberships, but they still fall short of goals and potential fitness outcomes

Solution: An app that connects users with a community of fitness consumers and professionals

Key stat: In use at 450 gyms and producing revenues of $40,000 per month

**RoundTrip**

Challenge: It takes hospitals hours to book non-emergency transportation

Solution: An online platform that connects hospitals and patients with on-demand, non-emergency medical transportation

Key stat: RoundTrip is seeing a 40 percent monthly increase in rides

A local, ‘vertical’ focus

The seeds for M-1 Ventures were planted years ago. Singh recalled the initial conversations he had with Johns Hopkins Technology Ventures (JHTV) about bringing an accelerator to Baltimore. Quickly, both parties agreed that an accelerator focused on connected health and fitness could provide the most impact.

“We wanted to create an accelerator that focused on skill sets, industries and talent that are already here,” Singh said.

By focusing solely on the connected health and fitness space, M-1 Ventures provides an opportunity to leverage Maryland’s anchor organizations—including prestigious research institutions and one of the world’s most successful athletic performance companies. The accelerator is supported by Johns Hopkins, Plank Industries, UM Ventures, The Abell Foundation, Brown Advisory, the Maryland Department of Commerce and Village Capital.

JHTV head Christy Wyskiel cited the need for even more collaboration between those who aspire to improve Baltimore’s innovation ecosystem as a means of bringing the benefits of discovery to the world and revitalizing the local economy.

“We need to create a thoughtful connected network,” Wyskiel said. “It’s not going to work if we’re all in our own silos.”

Brown Advisory partner Mike Hankin agreed, discussing Baltimore’s increasingly active innovation ecosystem and his hope for how it will continue to improve.

“Baltimore’s collective efforts are making great strides to foster thought leadership and innovation across the city,” Hankin said. “It’s not where we want to be yet, but it will get there.”
Meet the Entrepreneur:
Lacstation Supports Working Mothers and Their Babies

In 5 words, what does your company do?
Support breastfeeding moms at work.

What are your goals and how will you get there?
My goal is to have a Lacstation vending machine to provide breastfeeding and breast pumping supplies in every hospital and large employer in the country.

To get there, I have to prove to companies that supporting breastfeeding employees helps the company’s bottom line by increasing their ability to recruit and retain female employees and lower health care costs.

Health care organizations who implement this solution have the added benefit of being able to provide breastfeeding supplies to patients in an efficient and cost-effective manner.

Why have you chosen Baltimore as your startup’s home?
Quite simply, because it is my home. My husband and I have lived and worked in Baltimore for 19 years.

What opportunities make it a good place for growing a business?
The cost of living and working here is low and the community is very interested in seeing successes come to life in Baltimore. I believe that social entrepreneurs can have such a positive impact on Baltimore’s reputation!

In terms of startups and innovation, what’s one thing that separates Baltimore from other tech hotbeds?
The number of world-class medical institutions that we have and their interest in developing solutions for both health and community challenges.

If you could give your past self one piece of advice for creating a startup, what would it be?
Seek out a community of entrepreneurs and innovators for support.

What book are you currently reading?
I am always reading at least five books at a time. The one on the top of the pile at the moment is The Social Animal by David Brooks.

What innovator do you look up to? Why?
I look up to the moms who contact me with their stories about how they make breast-feeding work. They are amazingly innovative!

I recently talked to a mom who forgot her milk storage bags and the piece that attaches the bags to her breast pump. She works on a campus without a breastfeeding supplies vending machine, and she was able to engineer a solution using duct tape and a Ziploc bag.

It’s after a long day of work, and you don’t feel like cooking. What is your go-to Baltimore restaurant?
Niwana. I live in Charles Village, and I love being able to walk to a restaurant for take-out.

What’s your favorite non-work-related thing to do in Baltimore?
Go for a walk to Sherwood Gardens or eat ice cream at The Charmery.

Meg Stoltzfus

Four out of five mothers breastfeed their newborns, but that number slips to two out of five after three months. A major factor for that steep drop off is a return to work, and it’s not just because of hectic schedules.

The coordinator of Johns Hopkins University’s breastfeeding support program, Meg Stoltzfus received countless phone calls from mothers who had forgotten a part to their breast pump. Though happy to help, Stoltzfus recognized that racing across campus to deliver missing parts wasn’t a sustainable solution.

Inspiration struck Stoltzfus while at an airport where she saw a vending machine selling electronics and wondered, “Why not breast pump supplies?” Soon after, Stoltzfus entered the Social Innovation Lab where she developed the startup Lacstation, a vending machine that provides supplies and support to breastfeeding moms.

Having solutions like these in the workplace decreases employee stress, lowers health care costs, builds the employer’s reputation as family-friendly workplace and keeps women in the leadership pipeline. Already in use at the Johns Hopkins Hospital, Stoltzfus is aiming to have 10 companies install Lacstation vending machines by the beginning of 2018.

Below, Stoltzfus describes Lacstation and her journey as a Baltimore entrepreneur.
Good News:
Fractal Technology acquired by Sunayu;
AssistENT named finalist for Collegiate Inventors Competition;
BCD Innovations leases lab space at FastForward 1812;
VC firm looking to invest in Hopkins student startups

Startup News:

Proscia, a startup developed by Johns Hopkins University undergraduates, has entered into an agreement where its digital pathology platform will power the online version of Agilent Pathology Solutions’ Dako Atlas of Stains. Proscia, The Daily Record (Subscription required)

Fractal Technology, another startup founded by Johns Hopkins University undergraduates, reached an agreement to be acquired by Annapolis Junction-based cyber firm Sunayu. Baltimore Business Journal, Tech Transfer Central, Technical.ly Baltimore

Why do Maryland tech startups sell? The Daily Record asked this question to a number of startups, including Fractal Technology in September. Fractal, which is developing “middleware” to help streamline security standards for mobile applications, sold to the defense contracting firm Sunayu citing the “monumental challenge” of getting into the government space. The Daily Record (Subscription required)

Aaron Chang, the founder of Renalert, a startup based in the FastForward 1812 innovation hub, was named a Medtech Rising Star of 2017. Chang is developing a device that promises to reduce the rate of acute kidney injury during cardiac and other surgeries. Medical Device and Diagnostic Industry

Brevitē, a member of the Ralph S. O’Connor Fund’s 2015-2016 cohort, has launched a Kickstarter in order to raise $30,000 to support its business that creates lightweight, compact, functional and weatherproof backpacks. As of Sept. 28, it was nearly two-thirds to its goal with more than a month to go. Kickstarter

Technical.ly Philly profiled RoundTrip, a Philadelphia-based startup part of M-1 Ventures’ inaugural cohort. The startup is developing an online platform that connects hospitals and patients with non-emergency medical transportation. RoundTrip has secured a national ridesharing partnership with Lyft. Technical.ly Philly

Vixiar Medical — a FastForward startup developing a portable, non-invasive device that allows remote monitoring of congestive heart failure patients — is moving its headquarters from Annapolis to Baltimore. The startup will take space at The LaunchPort, a device manufacturing accelerator opening in City Garage. Baltimore Business Journal, Technical.ly Baltimore

Three of the six startups selected to pitch Baltimore Mayor Catherine Pugh and a panel of judges at Beta City have connections to Johns Hopkins. B.Well, emocha Mobile Health and Protenus were selected from 100 applications. B.Well is part of the M-1 Ventures accelerator, while emocha and Protenus are part of FastForward. Technical.ly Baltimore

Sathya Elumalai, CEO of the FastForward startup Multisensor Diagnostic, discussed the potential for his company’s tricorder-style device at StartUp Health Village. The company is developing MouthLab, a noninvasive device that can measure more than 10 different health parameters. Health Transformer

BCD Innovations announced on Sept. 21 that it had leased laboratory space at the FastForward 1812 innovation hub. The startup is focused on the development of diagnostic innovations for cancer detection. As BCD Innovations prepares the market launch of its non-invasive bladder cancer diagnostic test, its research labs at Johns Hopkins will work toward developing tests for lung and breast cancer. BCD Innovations

Ready Robotics, a FastForward startup developing a robotic system that addresses unique challenges to small manufacturing entities, is taking on another 3,000 square feet of space at City Garage. Doubling its footprint and increasing its employee count from 15 to about 20 will allow the startup to nearly quadruple its capacity. Baltimore Business Journal (Subscription required)

TechCrunch named FactoryFour one of its eight favorite startups participating in the renowned venture capital fund and accelerator 500 Startups. Founded by Johns Hopkins University students Param Shah and Alex Mathews, FactoryFour is developing a technology that uses big data to improve efficiencies in the manufacturing process management space. TechCrunch

Johns Hopkins researchers have developed a tool that’s designed to help emergency departments more quickly and accurately assign priority treatment levels. In studies, the e-triage tool was able to more accurately place patients at the proper priority level. StoCastic, a FastForward startup, has licensed the technology from The Johns Hopkins University. Health Data Management
Baltimore News:

Indianapolis-based manufacturing company Engineered Medical Systems has partnered with local investment and advisory firm The MVR Company to open an accelerator for medical device companies called LaunchPort. It will operate out of City Garage. Baltimore Business Journal, Technical.ly Baltimore

For the second consecutive year, Baltimore ranks eighth on Blacktech Week’s 2017 list of the best cities for African American-owned businesses. The write-up cites programming from the Baltimore Office of Sustainability, declining unemployment rates and increased survival rates of small businesses. Huffington Post

Maryland Gov. Larry Hogan announced his support for Baltimore’s Port Covington to be the site for Amazon’s HQ2. Port Covington is currently in development to become the future home for Under Armour’s headquarters. Bisnow

Business Insider included Baltimore on its list of the 50 cities that host the world’s best universities. In addition to being the home of The Johns Hopkins University, the write-up mentioned Baltimore’s rich history, shops and seafood. Business Insider

The personal finance resource Gobankingrates listed Baltimore among its 50 cheapest places to retire. The ranking was largely based on the city’s cost of living, which is 10 percent below the national average. WMAR Baltimore

In more news related to university rankings, The Johns Hopkins University tied with two other universities as the 11th best in the country, according to U.S. News & World Report. U.S. News & World Report

Not convinced Baltimore is a cool city? A report from the Resonance Consultancy ranked Baltimore one of the top 20 cities for art and cultural tourism. Cities were ranked by the number and quality of museums, theaters and concert halls. Baltimore Business Journal

M-1 Ventures — a connected health and fitness accelerated supported by Johns Hopkins, Plank Industries, the University of Maryland and other area institutions — announced the five startups comprising its inaugural cohort. The 16-week accelerator kicked off on Sept. 5 and will have a Demo Day in mid-December. Baltimore Business Journal, Technical.ly Baltimore, The Daily Record

In its third year, the student-organized MedHacks event attracted 99 teams from across the country for an intense hackathon from Sept. 8-10. Over the course of a weekend, participants developed a variety of solutions, including a smart bed to prevent bed sores, an app that tests hand tremors and an app that analyzes cough severity. Technical.ly, Johns Hopkins

The Johns Hopkins University was among the 55 major research institutions selected to participate in Contrary Capital. The venture capital firm is run by a network of approximately 100 student investors that look to invest in startups growing on their own campuses. Baltimore Business Journal

Johns Hopkins News:

A team of Johns Hopkins undergraduates has been selected as a finalist in the 2017 Collegiate Inventors Competition. This team of biomedical engineering majors known as AssistENT has developed a device that opens obstructed nostrils. This potential solution for snoring and other sleep disruptions could net the team prizes worth up to $10,000. The Hub

FastForward provides startups with access to pro bono legal services from four local law firms: DLA Piper, Saul Ewing, Whiteford Taylor & Preston and Venable. Not only does this help startups navigate a range of legal challenges, it enables the firms to develop relationships with businesses that could be future clients. The Daily Record

The Johns Hopkins University climbed four spots in Times Higher Education’s university rankings, moving up to 13th in the world. Among U.S. schools, Johns Hopkins ranked ninth. The annual ranking considers 1,000 universities from 77 countries. The Hub
18
NEWLY CREATED STARTUP COMPANIES

19
TEAMS RECEIVING MARYLAND INNOVATION INITIATIVE FUNDING TOTALING $2.4 MILLION

$56.8 MILLION RAISED BY 32 STARTUPS IN FOLLOW-ON FUNDING VENTURE INVESTMENT

6
STUDENT STARTUPS WERE AWARDED THE RALPH S. O’CONNOR UNDERGRADUATE ENTREPRENEURSHIP FUND

15
MENTORS-IN-RESIDENCE

$7.9 MILLION RECEIVED BY STARTUPS IN SMALL BUSINESS INNOVATION RESEARCH FUNDING

32
TEAMS PARTICIPATING IN I-CORPS

50
PARTICIPANTS, 12 TEAMS, 7 MENTORS AND 3 INSTRUCTORS IN JHU BOOTCAMP

See the complete JHTV 2017 Year in Brief: ventures.jhu.edu/year-in-brief-fy-2017

ventures.jhu.edu