VANDERBILT UNIVERSITY
CTTC Center for Technology Transfer & Commercialization

Driving *INNOVATION* Forward

Vanderbilt's Center for Technology Transfer and Commercialization provides professional commercialization services to the Vanderbilt community, thus optimizing the flow of innovation to the market and generating revenue that supports future research activities, while having a positive impact on the global society.

Inside

Message from the Director

Collaboration is key

Alan Bentley
Assistant Vice Chancellor, Intellectual Property & Commercialization

At the Center for Technology Transfer and Commercialization (CTTC), we get to work with doctors, surgeons, scientists, psychologists, engineers, programmers, teachers and students on their new ideas. We work with lawyers, ethics committees, alumni and foundation leaders to develop strategies for protecting and developing these concepts. We work with entrepreneurs, management teams, community advisors, investment firms, accelerators, and companies small and large on commercializing these innovations. We work with Vanderbilt leadership to make sure our efforts are positively contributing to the mission of the university, and we work with local and regional community leaders to ensure these activities impact local economic growth.

Over the course of the last several years, we have experienced significant growth in our commercialization activities and expansion of internal and external programs designed to enhance the value of our technology portfolio - these can be directly tied to our ability to effectively work with such a diverse group of stakeholders. However, none of these initiatives would be successful without close collaboration among the various teams within CTTC itself.

We have four distinct teams: Licensing, Commercial Operations, New Ventures, and the Medical Device Regulatory Affairs Program (MDRAP). While these four teams have differing objectives, we continue to push the envelope and find new ways to collaborate with one another which results in improvements and expansions in the services we offer the Vanderbilt community.

Early engagement of MDRAP

One such successful collaboration has been the early engagement of one or more members of the MDRAP team with licensing officers in meetings with inventors of medical devices. By bringing the MDRAP team into the mix earlier, we are able to strategically guide investigators into the commercialization process with an eye already keenly turned toward federal regulations. In addition to developing a plan for patenting, marketing and prototyping, MDRAP enables us to plan out the development of a design history file and regulatory pathway for medical device innovations. This new form of value creation will further enhance our ability to attract commercial partners for our device technologies. Learn more about MDRAP by clicking on the flyer to the left.

Supporting entrepreneurs

Similar to the collaboration between licensing officers and MDRAP, the licensing team regularly assists the new ventures team with the assessment of technologies with startup potential. In our new model, our new ventures experts are responsible for developing financial models, recruiting management, identifying sources of capital, and developing the overall business case, while the licensing officer works in concert to manage intellectual property and the licensing and other contractual issues associated with working with a new company. The combination of technical expertise, market knowledge, and business development enables CTTC to contribute sound advice and direction to Vanderbilt entrepreneurs.

Real-time marketing

Several from our licensing and commercial operations teams are working together to enhance our capabilities for strategic real-time marketing of our technologies to industry. As an example, by soliciting the assistance of the commercial operations team in monitoring digital conversations in various industries, new leads can be identified for targeted marketing of technologies in our portfolio to the most relevant and receptive industry professionals who are engaged in the online discussions. Marketing avenues of this nature involving social and digital media have heretofore been untapped resources for licensing professionals. But by leveraging other professionals within CTTC, and in other departments at Vanderbilt, new leads and new licensing partners have been uncovered.

Stay Connected to CTTC

To stay informed of the latest innovation news, events and technology commercialization activities, visit our blog, CTTC Muse. There you will find everything from agreement signings to tips for inventors - such as how to publish and patent - to videos about Vanderbilt technologies and core research capabilities.

Twitter Facebook LinkedIn YouTube Tech Connect, biweekly activities report

Featured Inventor

Pietro Valdastri, Ph.D.

Assistant Professor of Mechanical Engineering
Director, STORM Lab

Each year, roughly 15 million colonoscopies are performed in the U.S. to screen for colorectal cancer. Sadly, one out of three individuals who, due to risk factors, are eligible for the screenings do not get screened. According to Pietro Valdastri, Ph.D., assistant professor of mechanical engineering at Vanderbilt University, the reason many skip their screening is simple.

Click to watch on YouTube.

"The perceived pain of this procedure turns many away," said Valdastri, "and the current procedure used in the U.S. does come with some discomfort and often requires sedation, both of which we are trying to avoid through [our] research."

For the past decade, Valdastri has focused his research efforts on finding a less painful procedure for colorectal cancer screening. One current approach he is investigating involves miniature robotic capsules. The capsules, which are manipulated by magnetic field, can actively travel through the gastrointestinal tract, allowing gastroenterologists a clear view inside the colon. Valdastri's lab is also working to optimize a propeller-based capsule that will be ingestible. This latter technology acts as a miniature submarine and "swims" through the patient's stomach to perform a gastroscopy.

"Our goal is to develop robotic approaches to these gastrointestinal procedures that are as painless and as minimally invasive as possible," said Valdastri.

Valdastri recently received two significant awards, one from the National Institute of Health (NIH) and an Early Career Award from the National Science Foundation (NSF). These awards are a major boost for his research lab and will help provide the resources necessary to pursue FDA approval for these screening technologies and move them into clinical practices. The grant support will also allow Valdastri and his co-investigator Keith Obstein, M.D., assistant professor of medicine in the Division of Gastroenterology, Hepatology and Nutrition at Vanderbilt University Medical Center, to better train Ph.D. students, as well as interact with more doctors and patients to explore additional ways to improve patient care.

Valdastri recently completed his second stint in the NSF Innovation Corps (I-Corps) Program for investigating the market need for miniature modular robotic toolkits that were born out of the research involving robotic capsules. The idea is to offer these toolkits as a hands-on educational resource for middle and high school students.

In 2013, Valdastri participated in the I-Corps Program as part of Team EndoInSight to explore the commercial potential of a CO2 insufflation device for colonoscopy. That technology has since been spun out into a startup company, EndoInSight.

Valdastri is the Director of the STORM Lab in Vanderbilt University School of Engineering's Department of Mechanical Engineering. To learn more about his research, visit https://my.vanderbilt.edu/stormlab.

"Our goal is to develop robotic approaches to these gastrointestinal procedures that are as painless and as minimally invasive as possible." - Pietro Valdastri, Ph.D.

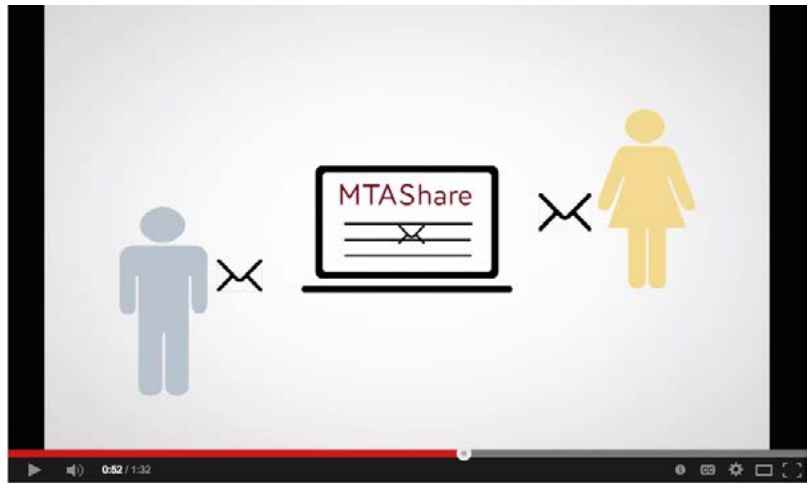
Modular robotic toolkits developed by Valdastri and researcher Eka Susilo, Ph.D. The toolkits earned the team a seat in the 2015 NSF Innovation Corps Winter Cohort.

Industry News

Vanderbilt leads the way for automation of material transfers

A team from CTTC traveled to the Crescent City this past February to participate in the 2015 Association of University of Technology Managers (AUTM) meeting. At the meeting, Alan Bentley, associate vice chancellor of intellectual property and commercialization, gave fellow conference goers a detailed look inside MTAShare, Vanderbilt's automated system for transferring research materials. He demonstrated the system and pointed out recent advancements, including the newly added ability to receive MTAs from other universities and the recruitment of several outside universities as "testers" of the system.

Currently, a half dozen academic institutions are testing MTAShare. The goal is to launch this system to external users later this spring. Click the video to the right to learn more about MTAShare.



CTTC licensing officer named Volunteer of the Year

Hassan Naqvi, Ph.D., licensing officer for CTTC (pictured to the left, courtesy of AUTM), was recently awarded the Association of University Technology Managers (AUTM) Volunteer Service Award as well as the Volunteer of the Year Award for 2015. Naqvi was recognized for his exemplary service to the organization and work to chart the future for academic technology transfer.

Hassan joined CTTC in August 2011 and is responsible for overseeing healthcare IT and personalized healthcare commercialization in addition to managing license compliance for the office. Prior to joining CTTC, Hassan was responsible for negotiating in-licenses for a number of diagnostic tests for use by the Cleveland Clinic Reference Laboratory. Hassan also initiated and managed the license compliance program at the Cleveland Clinic and managed the commercialization of a wide array of medical technologies. Prior to that, Hassan was a post-doctoral fellow with the Center for Electro Mechanics (CEM) at the University of Texas at Austin where he explored novel methods to extract fat droplets from algae for use as a biofuel.

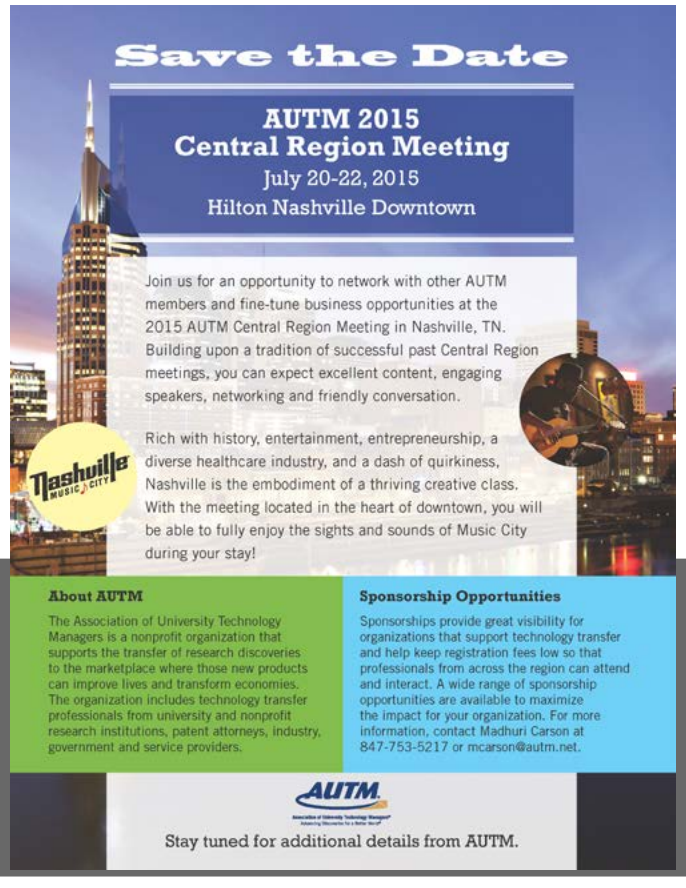
Hassan received his undergraduate degree in biology from the George Washington University in Washington D.C. and his Ph.D. in Cell and Molecular Biology from the University of Texas at Austin. He is a member of the Association of University Technology Managers where he is part of the Annual Meeting program committee.

AUTM Central Meeting to be held in Nashville this July

This July, technology transfer professionals from across the central U.S. will gather in Nashville and dive into a two-day workshop packed with engaging speakers, brainstorming sessions, best practices, and prime networking opportunities. Topics include: best marketing practices, foreign patent strategy, supporting startups, and when to litigate, to name a few.

With the meeting right here in Nashville, CTTC staff will have an opportunity to show off the culturally rich and vibrant city that Nashville is. CTTC will assist in coordinating dining and entertainment opportunities for attendees, which AUTM anticipates will be more than 200 technology transfer professionals.

Jody Hankins, Ph.D. and Hassan Naqvi, Ph.D., both members of CTTC's licensing team, and Nicolo Davidson of Stites & Harbison Law Firm are co-site chairs for the meeting.



New Venture News

SBIR Road Tour stops at Vanderbilt March 25

March 25, the SBIR Road Tour stopped at Vanderbilt University and presented to a large crowd of entrepreneurs, small technology firms and university innovators interested in the federal SBIR/STTR (Small Business Innovation Research/Small Business Technology Transfer) grant programs. Attendees heard about the SBIR/STTR program directly from the persons charged with managing those programs. Attendees also had the opportunity to schedule one-on-one meetings with program managers that allowed them to ask questions specific to their research or business. The event facilitated interactions between inventors and entrepreneurs from across the region.

The SBIR Road Tour is sponsored by the federal Small Business Administration (SBA). The Nashville leg was hosted by Launch Tennessee and Vanderbilt University Nashville was the second stop of the SBIR/STTR road tour which will travel through 20 states this spring.

Inventors and entrepreneurs benefit from one-on-one meetings with SBIR/STTR national program managers.

Tell your students!
Second annual Flash Pitch now accepting ideas

The second annual Flash Pitch competition for student entrepreneurs is now accepting ideas. Students with innovative ideas will have the opportunity to jump-start their entrepreneurial dreams by presenting their start-up idea to a panel of investors and entrepreneurs.

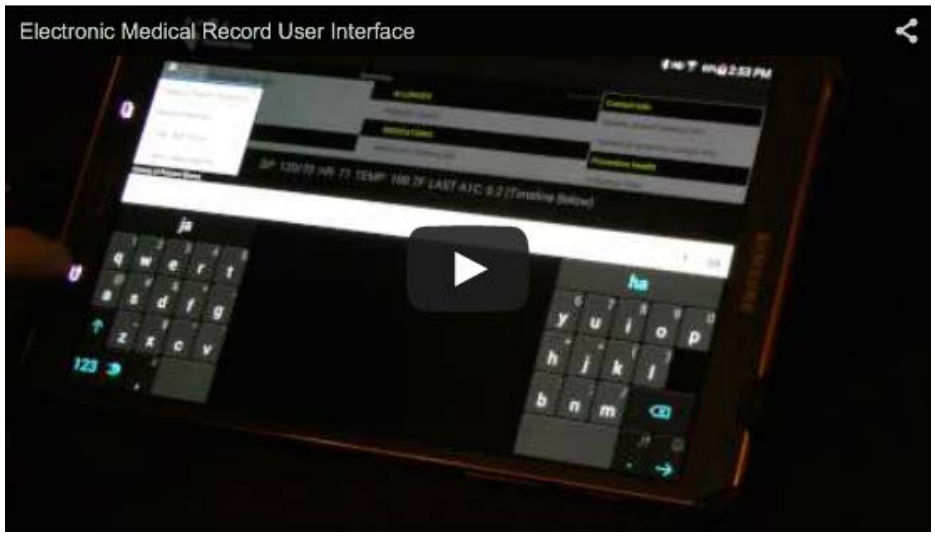
Students have until midnight, March 27 to enter an idea in **an online application**. A panel of judges will review all applications and select the most promising ideas. Those selected will be contacted during the week of March 30. Finalists will meet with CTTC's new ventures team for mentoring sessions prior to their 90-second "flash pitch" that will be made Thursday, April. 16. The top three winners of the Flash Pitch will receive additional mentoring as they work toward product and business launch.

The winners of the 2014 Flash Pitch were:

- 1st place: Will Hedgecock, the "PinPtr" high-accuracy GPS system
- 2nd place: John Boyd, PC comparison tool
- 3rd place: Ravi Atreya, an EMR interface that enhances and simplifies clinical documentation

Since winning the Flash Pitch, PinPtr has successfully completed both the National Science Foundation Innovation Corps Program and the Jumpstart Foundry 12-week accelerator program. PinPtr has signed an option agreement to further explore commercialization of the technology.

Additionally, Atreya's EMR interface is currently being marketed by CTTC. Videos highlighting PinPtr and the EMR interface are below.



Student Success

From Internships to special "rounds", VU students benefit from time with CTTC

Internship Program

Since 2012, more than two dozen Vanderbilt undergraduate, graduate and MBA students have participated in CTTC's 12-week paid internship program. The students have worked closely with licensing officers and other members of CTTC staff to assess the viability of new technologies, perform prior art searches to determine what other competing technologies exist, and create marketing summaries for the technologies. Special projects completed during internships include a summary of all case law relevant to technology transfer, business plans for new ventures, and technology presentations at regional industry conferences. Learn more about CTTC's internship program here.

Tech Venture Challenge

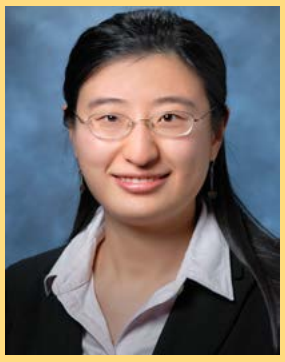
Each spring, CTTC hosts the Tech Venture Challenge, an annual competition designed to provide networking and educational opportunities for Vanderbilt students from a variety of backgrounds including Science, Business, and Law. Under the guidance of business mentors, the student-teams develop and present commercialization plans for Vanderbilt inventions/technologies. The 2015 competition is underway and teams are currently developing business plans which will be presented to a live audience and panel of judges later this spring.

Chris Harris, Ph.D., director of licensing, and Alan Bentley, assistant vice chancellor of intellectual property and commercialization, review a contract with residents

Radiology residents participate in tech transfer "rotation"

In the fall of 2014, a pair of radiology residents (pictured above) participated in a new technology transfer centric "rotation" for radiology residents. Over the course of two weeks, the residents met with various licensing officers for a condensed, but in-depth, course on technology transfer and commercialization.

Wenyue Du, Ph.D., former intern, lands at Cedars-Sinai



1. What are your current responsibilities at Cedars-Sinai?

I am a technology transfer analyst at the Cedars-Sinai Medical Center. Our office commercializes the inventions and discoveries of Cedars-Sinai physicians and scientists, and protects these innovations through the patent process. We also seek licensees and collaborators to further develop healthcare products and therapeutics from our existing technologies to improve patient care. As an analyst, I provide support for the marketing and licensing of our technologies. Specifically, my responsibilities include evaluating invention disclosures for commercial potential, identifying potential licensees through market research, preparing technology non-confidential summaries for active marketing, and analyzing and making recommendations for patent prosecution. I actively monitor and manage a subset of technology portfolios with the Marketing and Licensing Manager and educate research faculty about tech transfer and solicit new disclosure.

2. Did your experience at CTTC help prepare you for your current position, and if so, how?

Absolutely! My experience at CTTC was extremely valuable and prepared me very well for my current position. My internship at CTTC further strengthened my interest in tech transfer and taught me professional knowledge and skills that I can directly utilize in my current job. The staff at CTTC are super knowledgeable and friendly. They not only guided me through my internship projects, but also offered valuable career advice as great mentors. I also had the opportunity to see other aspects and daily work activities of tech transfer beyond my own projects, which was eye-opening and helped me understand the big picture. The office is very open and supportive. The experience itself is lots of fun too! In short, my CTTC internship was essential in preparing me for my current position and shaping my career. I am so glad and grateful that I had the opportunity to intern at CTTC.

3. What inspired you to move from the lab to technology transfer?

I love science and believe we can improve patients' lives through scientific discoveries. While doing basic science at the bench is vitally important, I wanted to use my scientific training to contribute more directly to the translation of science into products to help patients. Technology transfer is the perfect blend of science, business, and law. As tech transfer professionals, we are constantly standing at the forefront of new discoveries and advancing a variety of exciting technologies. The sheer fulfillment that my efforts contribute to a better future for the patients, despite being a tiny drop in the ocean, motivates me and makes me love my job every day.

4. What are your goals for the next five, 10 years?

I would like to continue the momentum and constantly grow professionally to make more contributions to bring science from the bench to bedside.

5. What advice would you give current or prospective graduate students as they explore careers outside of the lab?

Actively prepare yourself for transferable skills beyond the bench. Fully explore the resources and opportunities that Vanderbilt has to offer. Vanderbilt's BRET office does a great job in helping students explore career options, so make sure to grasp the many learning opportunities. Doing an internship is also a great way to transition from academia to other career options. Do some work to identify your passion, and work diligently to fulfill your dream!

Wenyue interned with CTTC from January 2013 - December 2013. She earned a Ph.D. in Structural Biology, Biochemistry from Vanderbilt in 2013.

CTTC Services

CTTC supports Vanderbilt researchers who seek to commercialize intellectual property by providing a variety of services. Some of the services are more widely known, while others may be less obvious.

To give you an idea of how we can assist you, here is a snapshot of the services we regularly provide:

- **Evaluating** commercial opportunities and market potential for novel technologies
- **Filing and prosecuting** patent applications
- **Marketing** technologies to industry
- **Negotiating** license and option agreements
- **Supporting** principal investigators with grant application and submission
- **Executing** various agreements, including: license, material transfer, confidentiality, inter-institutional and co-development
- **Facilitating** sponsored research and clinical trial agreements
- **Reporting** inventions to federal agencies to comply with regulations for recipients of federal funding
- **Monitoring** licensee compliance
- **Tracking** milestones and collecting royalties
- **Distributing** payments to inventors, labs, departments, centers, and schools
- **Assisting** in new venture assessment and development
- **Educating** through departmental talks and presentations about intellectual property protection and commercialization as well as educational seminars on commercialization-related topics

Supporting investigators with grant applications

When needed, CTTC staff assist investigators with grant applications and submissions. These include grants awarded by the National Science Foundation (NSF), particularly the Innovation Corps Program and the National Institute of Health. In partnership with Launch Tennessee, CTTC also works to support SBIR/STTR funding opportunities through workshops, special events and by connecting investigators to nationally renowned experts in the field.

This spring, several CTTC staff will be listed as co-investigators for a small handful of grant applications.

Vanderbilt's 5th team completes NSF Innovation Corps Program

Eka Susilo, Ph.D., preparing to present at the 2015 NSF Bay Area I-Corps Program. Pietro Valdastri, Ph.D., assistant professor of mechanical engineering, was the team P.I. Chris Harris, Ph.D., director of licensing for CTTC, served as the team mentor.

What's on Deck

Healthcare Information Technology

Last fall CTTC, in partnership with several research enterprises, applied for a federal grant to support the development of healthcare information technologies.

If awarded, the grant would support the building of a commercialization facility that would support R&D for new healthcare IT. Award announcements are expected any day.

Spotlighting Vanderbilt's Core Research Capabilities

Marketing technologies comes in many forms - from one on one interactions to international conferences and seminars. One new approach CTTC has embarked upon to help spotlight the core research capabilities at Vanderbilt University is through a series of videos that take viewers inside various research centers and institutes.

Recently, CTTC spent time at Vanderbilt's Institute for Space and Defense Electronics (ISDE), who tests radiation effects on electronics, to take a deeper look inside ISDE's research capabilities and current projects. Watch the video to the right to learn more.

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Have a question for CTTC?

Feel free to call our main office line at 615.343.2430
or email cttc@vanderbilt.edu.

Visit us online at **www.vanderbilt.edu/cttc**