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Northeastern University  
*Center for Research Innovation*



# CREATING IMPACT FROM UNIVERSITY INNOVATIONS

Northeastern University's Center for Research Innovation (CRI) is an impact-driven initiative bridging the gap between laboratory research and need-based solutions. The CRI serves as the University-wide portal between industry and leading-edge innovations from Northeastern's use-inspired research portfolio. A majority of the CRI staff has prior entrepreneurial experience, creating an agile and responsive team focused on the translation of University innovations into tangible solutions through licenses, spinouts and collaboration. The CRI's dedication to establishing ongoing dialogue with industry informs Northeastern's progressive research, enabling a productive balance between exploration and implementation.



Northeastern's innovation and entrepreneurial ecosystem has taken root in every corner of the University community. This collective passion and commitment to impact manifests ongoing achievements across campus, including at the Center for Research Innovation.

Whether it is the number of technology start ups, inventions disclosed, or revenue from University intellectual property, the CRI's momentum is part of the portfolio of tangible evidence demonstrating Northeastern's innovation and entrepreneurial ecosystem is thriving. This year, the success of the CRI in fulfillment of its mission is due in no small part to the enormous commitment to collaboration across the University's colleges, centers and organizations. This collaborative culture continues to differentiate Northeastern as that rare organization that walks-the-walk of a global innovator.

The Center for Research Innovation strives for ongoing acceleration in its mission to deliver value from University research. The reason we continue to exceed performance expectations is simple; we are pleased but never satisfied. In our third year of record-breaking performance, it is safe to say that at the CRI, we still believe the best is yet to come!



Tracey Dodenhoff  
Director

# COMMERCIALIZATION PROCESS

RESEARCH >>

SCOUTING >>

INVENTION DISCLOSURE FORM >>

ASSESSMENT >>

PROTECTION >>

MARKETING >>

LICENSE TO INDUSTRY OR SPINOUT FORMATION >>

COMMERCIALIZATION >>

REVENUE >>

REINVEST IN COMMERCIALIZATION







# INVENTION DISCLOSURES

Invention disclosures are where impact begins. They represent the identification of a new approach to a problem and are the lifeblood of any innovative and entrepreneurial ecosystem. The CRI has made a dedicated effort to ensure that the disclosure process is transparent for inventors, and this effort has resulted in invention disclosure rates doubling since the CRI was founded in 2011.

11% INCREASE ▲▲

# PATENT APPLICATIONS FILED

A patent application is the first line in the sand regarding inventorship. With a licensed patent attorney on staff, the cost of filing an initial "Provisional Patent Application" is low enough that it can be incorporated as part of our standard intake procedure. This means that inventors have more options early on regarding publications, collaborations, and discussions around their inventions without the risk of losing intellectual property.

105 ▲ 189 ▲ **217** ▲▲

FY2012

FY2013

FY2014

IDEA® AUTHORITY CREATION NOVELTY  
TRADEMARKS AUTHORSHIP

PATENT

©

BRANDS

INTELLECTUAL

PROPERTY

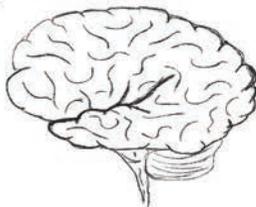
INVENTION

LICENSING

PROTECTION

® COPYRIGHT

TM





# QUALITY PATENTS

CRI has established a robust patent analysis and commercialization review process as standard operating procedure. The patent applications that continue through the process will be focused on those having the greatest chance of defensible patent protection and commercial viability, optimizing the value for inventors, the University, and industry.

100% INCREASE

## ISSUED PATENTS

**Patent No. 2555699 (Canada)**

Biomarker Discovery Platform

**Patent No. 8,628,912 (USA)**

Biomarkers for Diabetes, Obesity, and/or Hypertension

**Patent No. EP2174134 (Europe)**

Biomarkers for Diabetes, Obesity, and/or Hypertension

**Patent No. 8,581,178 (USA)**

Combined Mass and Differential Mobility Spectrometry and Associated Methods, Systems, and Devices

**Patent No. 8,631,091 (USA)**

Content Distribution Network Using a Web Browser and Locally Stored Content to Directly Exchange Content Between Users

**Patent No. 194085 (Israel)**

Devices and Methods for the Isolation and Cultivation of Microorganisms

**Patent No. 8,703,501 (USA)**

Directed Assembly of a Conducting Polymer

**Patent No. 8,637,356 (USA)**

Method of Integrating a Single Nanowire into a Nanocircuit

**Patent No. 8,512,959 (USA)**

Monoclonal Antibody Based Biomarker Discovery and Development Platform

**Patent No. 8,668,978 (USA)**

Multi-Biomarker Biosensor

**Patent No. 8,580,570 (USA)**

Narrow Bore Porous Layer Open Tube Capillary Column and Uses Thereof

**Patent No. 8,691,088 (USA)**

Narrow I.D. Monolithic Capillary Columns for High Efficiency Separation and High Sensitivity Analysis of Biomolecules

**Patent No. 4026724 (Japan)**

Polyvinyl Alcohol (PVA) Based Covalently Bonded Stable Hydrophilic Coating for Capillary Electrophoresis

**Patent No. 8,494,676 (USA)**

Process and Architecture of Robotic System to Mimic Animal Behavior in the Natural Environment

**Patent No. 8,713,948 (USA)**

Systems, Methods, and Devices for Frozen Sample Distribution

**Patent No. 8,719,936 (USA)**

VMM-Based Intrusion Detection System





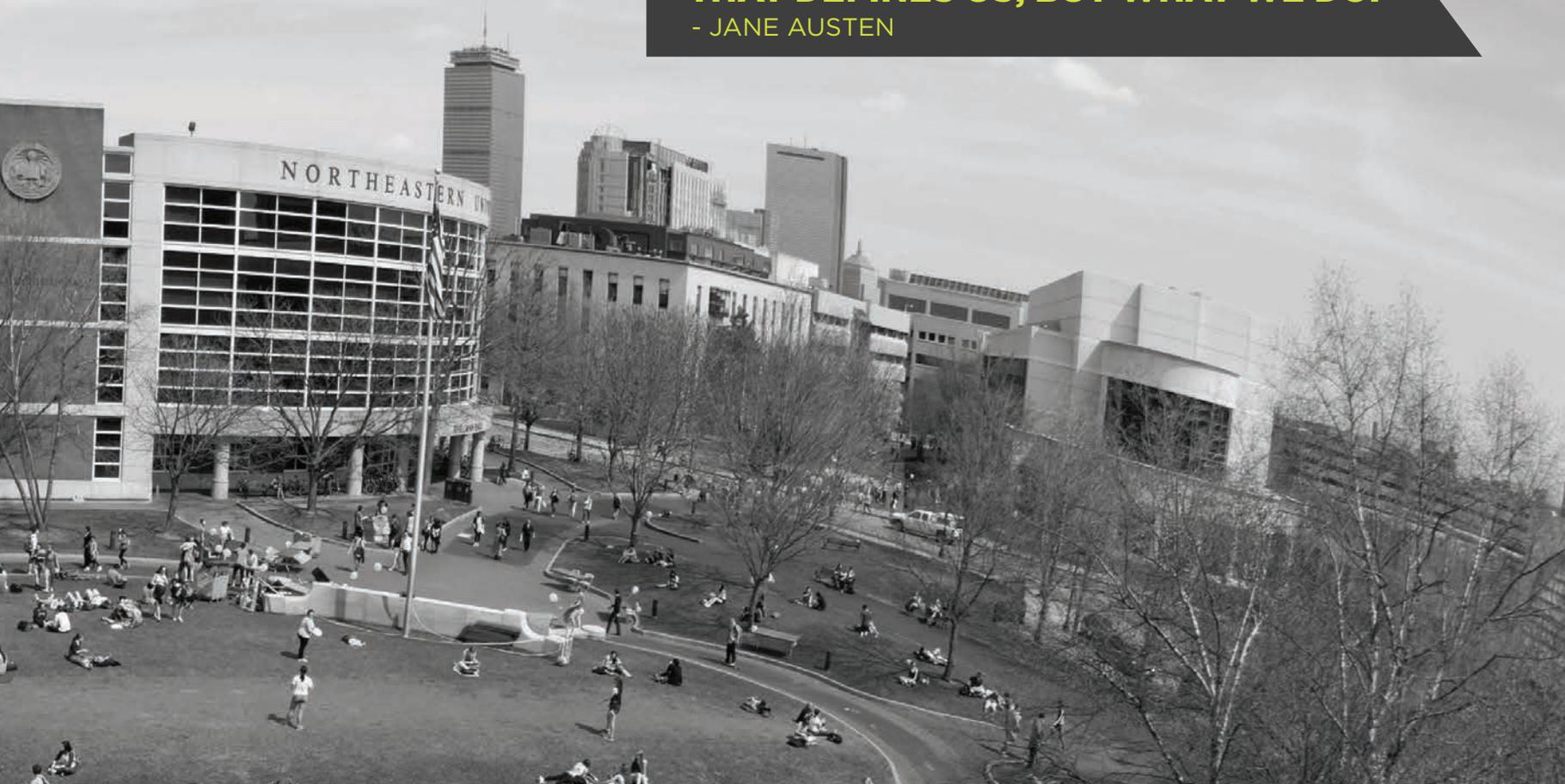
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**“IT ISN’T WHAT WE SAY OR THINK  
THAT DEFINES US, BUT WHAT WE DO.”**

- JANE AUSTEN





# INDUSTRY ENGAGEMENT

The Center for Research Innovation hosted more than 17 global companies in Fiscal Year 2014 with combined annual revenues exceeding \$500 billion and R&D budgets approaching \$25 billion. This represents an increase of 60% over the previous year as we build momentum with our industry partners.

The CRI remains steadfast in its goal of building long-term relationships with industry by hosting companies on campus lab visits, recruiting judges to participate in the Research, Innovation and Scholarship Expo (RISE), and engaging with University spinouts.

# 1 LICENSES/OPTIONS

With an 83% increase in combined license and option agreements, the Center for Research Innovation's start up initiatives and corporate outreach is building momentum. As the University continues to invest in its overall innovation and entrepreneurship ecosystem, the CRI anticipates a continuation of the record-breaking numbers of technology start ups.

83% INCREASE 

# REVENUE

This year a significant jump in revenue is realized due to a holistic strategy that combines licensing, partnering, and enforcement. The CRI is beginning to manifest financial success from its entrepreneurial approach to monetizing the University's innovations.

\$5,845,933 <sup>12X</sup> INCREASE 



# TECH SPINOUTS

A total of 20 technology spinouts have been recorded in the last 5 years, 90% of which were formed during the CRI's first 3 years.

DZZOM

HAC ANALYTICS, LLC

NANO POWER SOLUTIONS, INC.

PRESENTCARE, INC.

SENSTRUCT, INC.

VOCALID, INC.

WINCHESTER TECHNOLOGIES, LLC

17% INCREASE



## Menon Labs

Menon Laboratories, a Northeastern University spinout formed in Fiscal Year 2013, specializes in the low-cost and rapid synthesis of high-aspect ratio titania nanotube powders for diverse applications. Current technology focus of the company is in the development of next-generation ceramic filtration membranes for water-oil separation. The inexpensive membranes are robust, chemically-stable and require lower system pressures thus reducing overall operating expenses. The immediate applications will be in the oil and gas industry for the treatment of produced water from drilling and hydraulic fracturing.



Photo courtesy of Ted

## VocaliD

As a 2014 Northeastern University spinout, VocaliD, Inc. is focused on creating custom crafted synthetic voices by combining a speaker's residual voice with an anatomically similar voice donor's speech data. The result is a personalized voice that empowers users to communicate in their own voice. There are nearly 5 million Americans with speech or visual impairment that can benefit from this text-to-speech innovation. Moreover, the opportunity to engage the general public in the crowdsourced voice donor campaign makes this an exciting social venture. The company is a finalist in the MassChallenge accelerator program and an exhibitor at TEDMED Hive.

# RISE:2014

With over 900 student and faculty participants presenting 400 innovations to 2000 attendees, RISE:2014 continues to be the largest university research expo of its kind, highlighting Northeastern's research and start ups, while forging connections with industry and investors. It was a watershed year for judge participation, with 100 judges from industry sectors, investment, and government organizations. Northeastern University thrives on the integration of research, education and industry, culminating in a unique nexus point for our innovation colleagues.

Attendees continuously remarked on the passion students and faculty exuded as they presented their research to judges, members of the Northeastern community and external guests. People were particularly impressed with the sophistication and breadth of the subject matter exhibited. This year the CRI hosted a series of pitch training sessions equipping presenters for high impact interactions. RISE:2014 marked the launch of a "virtual" judging portal, paving the way for remote participation for future RISE events. The Center for Research Innovation continues to cultivate Northeastern University's innovation ecosystem to increase visibility and engagement.

OVER 2000 ATTENDEES  
OVER 400 ABSTRACT SUBMISSIONS  
100 INDUSTRY JUDGES  
OVER 200 RISE:2014 APP DOWNLOADS  
900 STUDENT AND FACULTY PARTICIPANTS  
LAUNCH OF VIRTUAL JUDGING PORTAL  
FIRST EVER BEST VIDEO PITCH AWARD  
INAUGURAL FLIGHT NETWORKING EVENT





# ENTREPRENEURIAL CULTURE

The CRI continues to invest in tools and platforms that support and accelerate entrepreneurship for the Northeastern community. This year, we are pleased to launch two initiatives that contribute to the University's entrepreneurial legacy.

## NU MENTOR

Based on successful mentoring programs in place at IDEA and the Health Science Entrepreneurs, the Center for Research Innovation led a collaborative initiative to develop a platform for the creation and management of entrepreneurial mentoring programs across the University's 9 schools and colleges. The platform provides a tool to connect experienced alumni as mentors for Northeastern spinouts while continuing to strengthen the deep relationship between the schools and colleges and their entrepreneurial alumni base.

**NU**  
MENTOR

## TECH2VENTURE

Always seeking to be proactive, the Center for Research Innovation piloted a new program to engage its entrepreneurial alumni in the commercialization of new technologies. Turning the old tech transfer model on its head, the CRI created the Tech2Venture (T2V) program to encourage seasoned entrepreneurs to "apply" for technologies they find compelling. T2V showcases technologies with high commercial potential, providing a cash grant to the entrepreneur selected for the program. The benefits include increasing the number of spinouts, reducing patent costs, and deeply engaging experienced entrepreneurs... a win/win!

tech<sup>2</sup>  
venture  
SUCCESS TOGETHER

# INTER-INSTITUTIONAL AGREEMENT (IIA)

An Inter-Institutional Agreement, or IIA, is a critical underpinning to effectively manage the budgetary and ownership aspects of intellectual property. Universities and hospitals enter into an IIA when they collaborate on research that produces intellectual property. The details of the IIA lay out who will lead patent prosecution and commercialization efforts, the allocation of costs, confidentiality provisions, and who will share in any revenue. The Center for Research Innovation's success in the execution of IIAs ensures the proper licensing of University inventions with co-collaborators.

267% INCREASE



K E Y A C C O M P L I S H M E N T S

**12X INCREASE IN REVENUE**

83% INCREASE IN LICENSES AND OPTIONS

**17% INCREASE IN SPINOUTS**

FY2014 RECORD NUMBER OF PATENTS ISSUED

**TECH2VENTURE PROGRAM LAUNCHED**

EXPANDED RISE NOW INCLUDING FLIGHT & REACH

FY2014 RECORD NUMBER OF INVENTION DISCLOSURES AND PATENT APPLICATIONS

**267% INCREASE IN IIAS NEGOTIATED**

**LAUNCH OF MENTOR PORTAL**

**25% INCREASE IN FACEBOOK FOLLOWERS**

**100% INCREASE IN TWITTER FOLLOWERS**

WIXM  
IMPACT TOWNS AND OUR  
NEXT STEPS