

A vertical photograph of a water splash, with water droplets suspended in the air and a large splash of water at the bottom. The entire image is overlaid with a semi-transparent blue filter. The text 'IMPACT 2019' is centered vertically over the splash.

# IMPACT 2019

**Recognizing the Moment.  
Generating Momentum.**

**N** Northeastern University  
Center for Research Innovation

# PROGRESS

2018-19 was characterized by progress. In FY19, the Center for Research Innovation launched new programs, deployed new tools, and operationalized new techniques in its endless pursuit of protecting, accelerating, and commercializing Northeastern innovation. The progress of 2019:

Made it easier for inventors to submit and track inventions



Accelerated technologies by providing critical gap funding



Increased exposure of laboratory capabilities to propel innovation through partnership

The progress of FY19 was driven by skilled execution of a plan and strategically utilizing resources. Personnel, know-how, ingenuity, and dedication propelled the effort. The year was marked by recognizing and seizing the moment, time and time again.

The progress of FY19 is reflected in record breaking numbers. We, the CRI, however, are not satisfied with snapshots of success, but strive for sustained, year-in-year-out success and will channel the momentum generated in 2018-19 to power 2020, 2021, 22, 23 and beyond.



Jennifer Boyle-Lynch, Co-Director



Andrew Curtin, Co-Director



**MO  
ME  
NT  
UM  
BEGINS**

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**Protecting** Northeastern  
innovation positions  
technologies for maximal  
economic and social impact.

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**87**

Invention Disclosures

**186**

Patent Applications | 11% Increase

**48**

Granted Patents | 50% Increase

# Global Recognition

National Academy of Inventors  
Top 100 Universities  
Granted U.S. Utility Patents  
(Calendar Year)

29

Patents 2015

25

Patents 2016

25

Patents 2017

27

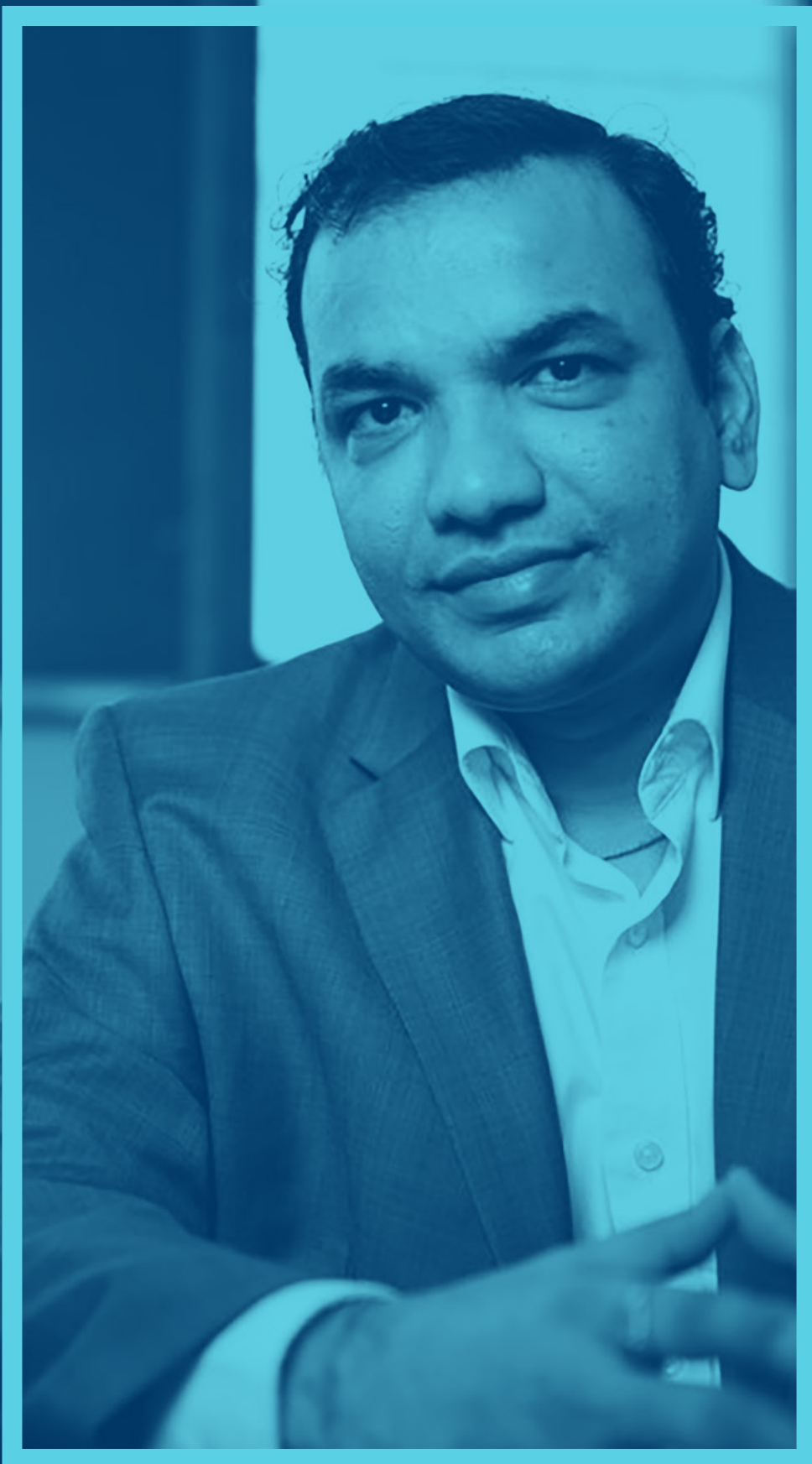
Patents 2018

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## Inventors Awarded Patents

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Mansoor Amiji  
Mahshid Amirabadi  
Elias Brassitos  
Ahmed Busnaina  
Rebecca Carrier  
Kaushik Chowdhury  
Heather Clark  
Edgar Goluch  
Swastik Kar  
Laura Lewis  
Alexandros Makriyannis  
Tommaso Melodia  
Latika Menon  
Shashi Murthy  
Marvin Onabajo  
Elizabeth Podlaha-Murphy  
Carey Rappaport  
Jeffrey Ruberti  
Srinivas Sridhar  
Ganeshsingh Thakur  
Ming Wang  
Meni Wanunu  
Edmund Yeh



## Local Recognition

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### **CRI Nominated *Invented Here!* Awardee**

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Ganeshsingh Thakur, Associate Professor of Pharmaceutical Sciences, was honored by the Boston Patent Law Association at Invented Here! where select New England inventors are recognized for their transformative contributions.

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PATENT NUMBER 9,926,275

**“Allosteric Modulators of the  
Cannabinoid 1 Receptor”**

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## **New Inventor Resource**

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### **ONLINE INVENTOR PORTAL**

With the CRI's new Inventor Portal, inventors can disclose online, track patent status, and view their portfolio. This new tool helps inventors save time and stay informed.



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# InnoEd

WHERE INNOVATORS LEARN

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Where Northeastern innovators learn from experts about protecting intellectual property, launching startups, and commercializing technologies.

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## Program Spotlight

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TO KILL A  
PATENT RIGHT

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**35**

Faculty, Students, Staff Engaged

**6**

Colleges Represented

BCHS | COE | COS | CPS | DMSB | CCIS

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# Global Reach

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Center for Research Innovation hosted delegates from the United States Patent and Trademark Office's Intellectual Property Attaché Program to showcase Northeastern's success in building global patent portfolios, pairing industry needs to Northeastern solutions, spurring commercial licensing efforts, and creating impact-generating ventures.

Attachés work directly with foreign officials to advocate for U.S. businesses and stakeholders seeking to improve Intellectual Property policies, laws, and regulations abroad.

The Program also serves as a resource for entrepreneurs seeking subject matter experts on international jurisdictions.



# MOMENTUM ADVANCES

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**Accelerating** opportunity through expert education, industry partnerships, and signature programs positions Northeastern technologies to address urgent local and global challenges.

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**76**

External Leads | 16% Increase

**40**

Industry Meetings | 13% Increase

**19**

High Engagement Relationships | 37% Increase

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## INDUSTRY SPONSORED RESEARCH

CRI successfully pitched IP terms and the benefits of sponsoring research to corporate partners leading to **\$1,208,594** in FY19



GapFund360 catalyzes state-of-the-art technologies, advancing Northeastern innovation through prototyping, validation, and industry input.

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#### GAP FUNDING TO COMPANY FOUNDING

GapFund360 illustrates Northeastern's commitment to pioneering technologies. The formation of companies by Kaushik Chowdhury (DeepCharge), Jeffrey Ruberti (RegenX), and Matteo Rinaldi (Zepsor) proves the commitment outweighs the risk.

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## 2018 Awardees

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**\$250k** Total Awards

**\$50k** Per Award

**Contactless Wireless Energy Transfer:  
Anywhere, Anytime Charging Surfaces**

Kaushik Chowdhury, Yousof Naderi, Ufuk Muncuk, Kai Li

**EchoPose: Smart AI Trainer by  
Deep Learned Visual Intelligence**

Raymond Fu, Songyao Jiang

**Uniquely Engineered Nontoxic Mn-ferrite  
Superparamagnetic Nanoparticles for  
Magnetic Resonance Imaging**

Vincent Harris, Parisa Andalib

**First in Animal Demonstration of  
Tendon/Ligament Repair and Replacement**

Jeffrey Ruberti, Adam Hacking

*Global Resilience Institute Awardee*

**Battery-less Infrared Sensor Tags for  
Reliable Occupancy Sensing (BISTROS)**

Matteo Rinaldi, Zhenyun Qian, Sungho Kang

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## Sparking Partnership

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Northeastern's spirit is motivated by collaborative partnering. Uniting diversity of viewpoints, strengths, aims, and goals toward a mission of empowering constituents to enhance their lives for the betterment of self and others.

CRI joined Alumni Relations, Corporate Learning, and Employer and Career Design to launch *Alumni Employer Partnership Forum* - a program pairing personal experience with institutional opportunities in research, learning, and recruitment.





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The premier showcase for Northeastern's impact-oriented research community.

Meet the minds, see the research, feel the energy. A nexus of connection presenting opportunity for all.

Enhancements to RISE:2019 captured cross campus collaboration with the inaugural Focus Awards.

Focus Awards “focus” attention on particular aspects of RISE participation.

Recognizing and rewarding specialized excellence. Sponsored by Northeastern colleges and schools, organizations and initiatives.

## Founding Focus Awards

# 5

## Worth \$7,500

### SPONSORS

COE  
DATA Initiative  
SAIL  
SHARE  
RISE



**PATHWAYS TO  
PARTNERSHIP**

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By pairing R&D needs with Northeastern capabilities, Pathways to Partnership events are an invitation to create customized solutions and industry input.

**Microfluidics Consortium, MF-10** – June 2019

A global forum for industry affiliates, university researchers, and technology influencers to exchange ideas and discuss the expanding growth and challenges being faced within the world of microfluidics.

**IoT+5G @ Northeastern** – December 2018

Getting Connected. Northeastern IoT and 5G experts discuss current projects, promising results, and partnering opportunities in wireless networks, energy harvesting, big data, sensors, cognitive radio and resilience.



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**Starting a company is complex.  
Accell360 simplifies.**

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Offering a comprehensive suite of vetted resources, Accell360 empowers Northeastern entrepreneurs to realize the commercial potential of their technological discovery. Strategic guidance from inception to exit.

**COMING SOON**



# MOMENTUM REALIZED

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**Commercializing** technologies via industry licenses and Northeastern spinouts impacts the home, the workplace, the commons – generating tangible solutions fostering health, safety, and sustainability.

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## Licensing Deals & Revenue

ADVANCES IN COMMERCIALIZATION IMPACT

# 18

Licenses & Options | 157% Increase from 2018  
RECORD BREAKING

# 31

Technologies Licensed

# \$652,632

Licensing Revenue | 17% Increase from 2018  
RECORD BREAKING

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# Igniting Recognition

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TechConnect World Innovation Expo provided CRI a global platform for promoting five ventures, with three securing special recognition as Innovation Awardees.

## INNOVATION AWARDEES

### **QSM Diagnostics**

Develops point-of-care diagnostics for rapid identification of infections.

### **RegenX**

Assembles collagen into high-density, high-strength, organized structures designed for surgical replacement and repair.

### **Zepsor**

Creates zero-power, wireless flame detection sensors capable of comprehensive indoor and outdoor fire monitoring.

## EXHIBITING VENTURES

### **BioNet Sonar**

Enables a new generation of smart medical implants with sensing and wireless connectivity based on safe, high-performing ultrasonic waves.

### **DeepCharge**

Transforms any surface into an intelligent wireless charger through a first-of-its-kind software-defined system.



# Spinouts

## Entrepreneurial Momentum Manifests



75% Increase from 2018

Boston Intelligent Systems and Technology

FirstMatrix | Kytaro | Mechasim

RegenX | SalivaTek | Volunteer Science

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Bio-Techne acquisition of  
Northeastern's Quad Technologies  
results in **\$1.2 M in revenue**  
to the university.

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# Coming Soon

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## EXPRESS LICENSE

With standardized, spinout friendly terms the Express License eliminates costly, time-intensive negotiations, empowering entrepreneurs to focus valuable resources on what matters: building thriving ventures.

## NUTECH

NUtech will provide early access to Northeastern's newest technologies. Yielding actionable information about freshly disclosed, provisionally protected technologies. A time-saving, lead generating resource.





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