



# New Jersey Institute of Technology (NJIT)

## New Jersey's Science, Technology and Design University

Scholarly and applied research are at the very center of university life at NJIT. Research is integrated into everything we do, from the recruitment of new faculty, to the proliferation of research opportunities for our graduate and undergraduate students, to the university's focus on economic development through our Enterprise Development Center (EDC). In moving to the next level in transforming intellectual capital into thriving commercial enterprises and solutions to industry challenges, we established the New Jersey Innovation Institute (NJII), a non-profit NJIT corporation, in 2014.

As our faculty and students continue to make groundbreaking discoveries across disciplines, we are growing our research capacity strategically to ensure our laboratories connect to practical applications. Our mission is to play a leading role in four emerging areas of multidisciplinary research:

- Life Sciences and Engineering
- Data Science and Information Technology
- Sustainable Systems
- Transdisciplinary Research

Our research centers are the primary vehicles for tackling multifaceted societal problems and seeing them through to completion. By drawing on the insights and expertise of original thinkers across sectors, we achieve capabilities that are greater than the sum of their parts.

### Life Sciences and Engineering

This research cluster includes both basic and applied research in the areas of neuroscience, neural engineering, regenerative medicine and point-of-care technologies, as well as healthcare information systems and management involving primary care, hospitals and emergency care resources and protocols.

### Data Science and Information Technology

This research cluster includes the study and practice of extracting information and knowledge from data that can be used for medical, financial, scientific and engineering applications. These focus groups are engaged in bioinformatics, medical informatics, image processing, data mining, solar-terrestrial physics, transportation, financial management, life sciences and healthcare. In addition, the cybersecurity group studies how to design secure cyber systems and to improve cyber information and communications technology.

### Sustainable Systems

This cluster represents research areas in urban ecology and

sustainability, advanced materials and nanotechnologies, and smart manufacturing systems. The area also focuses on the water-energy nexus to investigate the impact of ocean levels on the environment, as well as the development of technologies for clean water and energy resources such as biofuel cells.

### Transdisciplinary Areas

This cluster includes research centers focusing on mathematical sciences and transportation systems, as well as science and technology's impact on society. These three areas have a broader multidisciplinary and interdisciplinary scope over a large number of applications, including life sciences, smart cities and societal behavior to develop enabling technologies for market needs.

### Enterprise Development Center (EDC)

Our EDC is a high-tech and life science business development center to help startups and growth companies become profitable businesses and dynamic participants in the economic life of New Jersey and the nation. We give startups a critical edge on their path to commercialization.

*The historic renovation of the five-story Central King Building is the first wave of a \$300 million capital building campaign that is invigorating research, teaching and community life at NJIT. In addition, two new buildings are currently underway: a 24,500-square-foot Life Sciences and Engineering Building and a 200,000-square-foot Wellness and Events Center with a 4,500-seat conferencing space that transforms into a 3,500-seat arena.*



### New Jersey Innovation Institute

The New Jersey Innovation Institute (NJII) is an NJIT corporation focused on helping private enterprise discover what's possible. Whether it's working to solve the grand challenges shared across an entire sector or helping a single company find an innovative way to pursue a new product or market opportunity, NJII brings world-class intellectual and technological resources to bear.

NJII's iLabs serve as the catalyst for collaboration among the academic, private and public sectors in:

#### • Biotechnology and Pharmaceutical Production

NJII helps pharmaceutical companies develop and apply innovative, cost-saving manufacturing technologies and works with biotechnology firms to scale innovation from lab to commercial production.

#### • Civil Infrastructure

NJII works with partners on innovative solutions to upgrade public infrastructures and develop resilient

systems to withstand natural disasters. Solutions include advanced materials, new design and construction methods, and smart-building and sensor technologies.

#### • Defense and Homeland Security

NJII helps address the demands of defense and national security, including port security, biometric and sensor-based detection systems, weapons, energetics and material logistics.

#### • Financial Services

NJII partners with financial and information technology professionals on issues ranging from identifying and mitigating the impact of financial bubbles to developing and implementing new supply-chain management systems.

#### • Healthcare Delivery Systems

NJII helps create new models of evidence based healthcare. Building on a secure exchange of digital information, these new delivery systems improve the quality of care and foster new medical device technology to lower costs and improve outcomes.

## FAST FACTS

- Over \$130 Million Research Expenditures
- 90 New Faculty Members Over the Past Five Years
- \$300 Million Capital Building Program
- 209 U.S. Patents in 2016  
115 U.S. Patents Pending
- More Than \$1.74 Billion Annual Economic Impact on New Jersey



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## INAUGURATION OF THE INSTITUTE FOR BRAIN AND NEUROSCIENCE RESEARCH (IBNR)



Uniquely collaborative research into the myriad complexities of the brain and neurophysiology is gaining momentum at NJIT across diverse disciplines that include biology, biomedical engineering, the mathematical sciences and computing. To learn more, visit [ibnr.njit.edu](http://ibnr.njit.edu).