

Research Centers and Labs

NJIT's research program focuses on applied research in the most promising of emerging technologies, with emphasis on technology transfer and commercialization. Research at NJIT is organized around multi-disciplinary centers of excellence that encourage partnerships among various disciplines, as well as with other educational institutions, private enterprise and government agencies.

Research Centers in Life Sciences and Engineering

- **Center for Injury Biomechanics, Materials and Medicine: Experiments and modeling of blast and blunt Traumatic Brain Injury (TBI).**
- **Center for Membrane Technologies:** Micro- and nanoporous filters for medicine and pharmaceutical manufacture.
- **Engineering Research Center for Structured Organic Particles:** (<http://www.ercforsops.org>) Particle technology to improve the way pharmaceuticals, foods and agriculture products are manufactured.
- **Rehabilitation Engineering Research Center:** Neurorehabilitation and robotics; virtual reality rehabilitation.

Research Laboratories in Life Sciences and Engineering

- **Neural Interface Laboratory:** (<http://web.njit.edu/~sahin>) Interfaces with the central nervous system to record volitional control signals and micro-stimulate the spinal cord to improve the motor function after injury.
- **Stem Cells and Tissue Engineering Lab:** (<http://web.njit.edu/~cho>) Natural biopolymer, micropatterning techniques.
- **Swarm Lab:** Mechanisms underlying the coordination of large animal groups.
- **Tissue Models Lab:** (<http://www.tissuemodels.net>) Cell and tissue biology based on the use of micro- and nanotechnologies.
- **The Vision and Neural Engineering Lab** (<http://web.njit.edu/~alvarez>): Oculomotor dynamics, vergence eye movements.

Research Centers on Sustainable Systems and Manufacturing

- **Center for Building Knowledge:** (<http://centers.njit.edu/cbk>) Educational facilities, health care and aging environments, developmental disabilities planning, historic preservation, housing and community development.
- **Center for Natural Resources Development and Protection:** Field, analytic and computational studies of techniques for dealing with coastal pollution and stormwater management.
- **Center for Resilient Design:** (<http://centerforresilientdesign.org>) Ready-to-build designs and expertise for smarter, more sustainable designs in areas affected by natural and man-made disasters.
- **Center for Manufacturing Systems:** Advanced technology center with a dual mission of providing manufacturing support for university research programs and offering design and manufacturing expertise to small and mid-size companies.
- **Membrane Science, Engineering and Technology (MAST) Center:** Development of specialized membrane technology for Energy Production, Water Treatment, Pharmaceutical Purification and Chemical Processing.
- **Microelectronics Fabrication Center:** Application-specific integrated circuits, optical switches, pressure sensors, and MEMS for biomedical, biometrics, and microfluidics application.
- **New Jersey Center for Engineered Particulates:** Tailored particle coatings for pharmaceuticals, food, cosmetics, ceramics, defense, electronics and specialty chemicals.
- **New Jersey Homeland Security Technology Systems Center:** Technologies to deter or respond to the threat or terrorist attacks
- **York Center for Environmental Engineering and Science:** Hazardous substance management, pollution remediation and prevention, sustainable manufacturing.

Research Laboratories on Sustainable Systems and Manufacturing

- **Imaging Laboratory** (<http://design.njit.edu/forstudents/computing.php>): Computer-aided design in architecture.
- **Laboratory for Process and Field Analytical Chemistry:** On-line process analysis, environmental monitoring, portable instruments for on-site environmental measurement.
- **W.M. Keck Laboratory:** Manipulation of liquid flows and the small particles/microorganisms they transport in biological and biomedical technologies.

Research Centers in Data Science and Information Technologies

- **Center for Solar Terrestrial Research:** Solar optical astronomy, solar radiophysics, terrestrial science.

- **Center for Wireless Communications and Signal Processing Research:** (<http://cwcspr.njit.edu>) Multi-carrier systems, Turbo Coding techniques, ultra-wideband communications, MIMO systems.
- **Cybersecurity Research Center** seeks to address ongoing and long-term future needs to research new methods for understanding how these systems can be compromised and fail, how to design cyber systems so they are secure, and how to improve or fix the cyber infrastructure that has already been deployed
- **Leir Center for Financial Bubble Research:** (<http://www.leirbubblecenter.org>) Quantitative and qualitative research to determine how a financial bubble can be identified including its stages of development and what policies can best manage its impacts.
- **LIXIN-NJIT Economic Risk Early Warning Center** (<http://centers.njit.edu/lixin>): Methodologies of early warning for studying macroeconomic risk; industry risk identification and early warning; bank liquidity risk warning index system; bank credit risk and internal credit rating.
- **New Jersey Health Information Technology Extension Center** (<http://www.njhitec.org>): Meaningful use of electronic health records.
- **Structural Analysis of Biomedical Ontologies Center:** (<http://cs.njit.edu/~oohvr/SABOC>) Medical terminologies and ontologies.

Research Laboratories in Data Science and Information Technologies

- **Advanced Networking Laboratory** Engages in research to improve the performance, dependability, and trustworthiness of telecommunications networks.
- **Data and Knowledge Engineering Laboratory:** Data mining, bioinformatics, computational biology.
- **electronic Arts Habitat (eArth):** Multimedia, social computing, human-computer interaction.

Research Centers in Trans-disciplinary Areas

- **Center for Applied Mathematics and Statistics: Mathematical biology, fluid dynamics, wave propagation.**
- **Intelligent Transportation System Resource Center:** (<http://transportation.njit.edu/NCTIP/research/ResRep.asp?status=Ongoing&projectNo=210&grantNumber=0>) To assist NJDOT in developing and implementing a comprehensive ITS management strategy.
- **National Center for Transportation and Industrial Productivity** (<http://transportation.njit.edu/nctip>): Freight movement at domestic and international gateways, global competitiveness, intermodal passenger and freight transportation systems.
- **North Jersey Transportation Planning Authority:** (<http://www.njtpa.org>) Maintaining and improving transportation systems.
- **Transportation, Economic and Land Use System (TELUS)** (<http://www.telus-national.org>): Computerized transportation planning and programming.

Small Business and Entrepreneurship

- **Enterprise Development Center** (<http://www.njit-edc.org>): **EDC companies have access to NJIT facilities and can partner with researchers to help grow their business.**
- **New Jersey Innovation Acceleration Center** (<http://centers.njit.edu/njiac>): **Student, faculty and community based entrepreneurs access to training and other resources.**
- **NJIT Procurement Technical Assistance Center (PTAC)** provides contractual and technical assistance to small-established New Jersey businesses, who are interested in marketing their products, services to federal, state and local government agencies. The center operates under a cost sharing cooperative agreement between Department of Defense and New Jersey Institute of Technology.
- **ManufactureNJ (MNJ):** is one of several New Jersey Talent Networks each of whose focus is on the specific needs of other key industries including: Financial Services; Health Care; Transportation, Logistics, and Distribution; Life Sciences; Hospitality and Retail; and Technology and Entrepreneurship.