



NASA's Impact in Illinois: A Tech Transfer Perspective

You know that NASA studies our planet, our sun, the solar system, and the Universe. But did you know about the space program's economic impact here on Earth?



In 2011, NASA invested over **\$20 million** in the state of Illinois.

Since 2001, NASA's SBIR/STTR Program has invested nearly **\$22 million** in **30 Illinois companies** and more than **\$1.2 billion** nationwide.

How NASA's SBIR/STTR Program Benefits Illinois

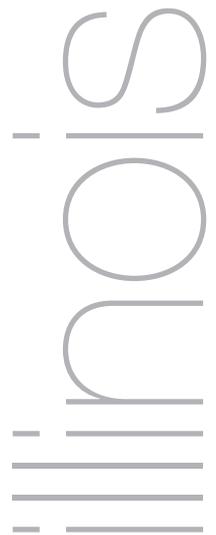
NASA is committed to moving technologies and innovations into the mainstream of the U.S. economy, and the Small Business Innovation Research/Small Business Technology Transfer (SBIR/STTR) program helps fulfill this goal.

SBIR/STTR stimulates technological innovation by encouraging small, high-tech companies—particularly minority and disadvantaged businesses—to partner with NASA to help meet its research and development needs in key technology areas. At the same time, this program strengthens small companies by enabling them to bring cutting-edge new products into the U.S. economy.

The list to the right highlights Illinois businesses that received SBIR/STTR contracts from NASA since 2001. (Visit <http://sbir.nasa.gov> for more information on the SBIR/STTR program.)

NASA SBIR/STTR Companies in Illinois

American Energy Technologies Company.....	Glenview
Applied Materials Systems Engineering, Inc. (AMSENG)	Schaumburg
Applied Thin Films, Inc.	Evanston
Aries Design Automation, LLC	Chicago
Binachip, Inc.	Chicago
Bio-Imaging Research, Inc.	Lincolnshire
Cbana Laboratories.....	Champaign
Ciespace Corporation	Oak Brook
Containerless Research, Inc.	Northbrook
CU Aerospace, LLC.....	Champaign
Diffraction Products, Inc.	Woodstock
EPIR Technologies, Inc.	Bolingbrook
EpiWorks, Inc.	Champaign
Epsilon Lambda Electronics Corporation.....	West Chicago
Hbar Technologies, LLC.....	West Chicago
Ibex Healthdata Systems	Rosemont
IllinoisRocstar, LLC.....	Champaign
Ingenium Technologies.....	Rockford
Microengineered Metals, Inc.	Yorkville
MicroLink Devices, Inc.	Niles
Nevins Software, Inc.	Morris
Packer Engineering, Inc.	Naperville
Pirouette Software Consulting	Chicago
PROVE IT, LLC.....	Orland Park
Runtime Verification, Inc.	Champaign
Starfire Industries, LLC	Champaign
Superior Graphite	Chicago
Tetra Research Corporation.....	Princeton
Vega Wave Systems, Inc.	West Chicago
Yoder Software, Inc.	Urbana

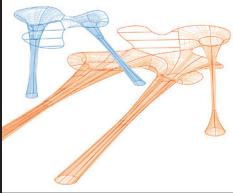


How NASA Spinoffs Benefit Illinois



Chlorophyll Meter Aids Plant Nutrient Management *(Plainfield)*

NASA developed a technology to monitor the density and distribution of the Earth's vegetation via satellites. Spectrum Technologies, Inc. licensed and transformed that technology into a hand-held sensor that measures two wavelengths of light to determine a plant's chlorophyll index value. Using a point-and-shoot technique, the meter can take measurements for a single plant or calculate a running average for a lawn or crop field. This data helps farmers optimize fertilization and maximize crop yields.



Design Software Translates 2-D Graphics to 3-D Surfaces *(Elgin)*

NASA created a 3-dimensional (3-D) to 2-dimensional (2-D) blade-flattening application to help turboprop fan blade manufacturers address the stretching and shrinking issues inherent in forming a curved blade from layers of flat carbon graphite sheets. After seeing a NASA Tech Briefs article about this application, Fabric Images, Inc. licensed this technology to help the 3-D display company eliminate a step from their process, yielding an 11.5 percent time savings and less wasted material.



Computational Modeling Develops Ultra-Hard Steel *(Evanston)*

QuesTek Innovations, LLC uses computational models to custom-design steels and alloys. Recently QuesTek developed a new carburized, martensitic gear steel with an ultra-hard case and used NASA's world-class test facilities to demonstrate the superiority of the alloy and the contact fatigue benefit attainable. The credibility provided by NASA's testing enabled QuesTek to commercialize two new alloys that combine maximum case hardness with a tough, ductile core that offers long life and a 20 percent increase in gear endurance.



Making the Most of Waste Energy *(Mount Prospect)*

In 2003, Unitel Technologies, Inc. approached NASA about an advanced energy recovery cycle to cost-efficiently convert low-level thermal energy from power plants into usable electric power. Unitel estimated that a significant amount of energy was wasted daily—literally blown into the atmosphere from power plant smokestacks. Unitel wanted to find a way to convert these low-level heat sources into usable electric power. Collaborating with NASA, they designed a successful waste heat recovery system prototype called NEOGEN.



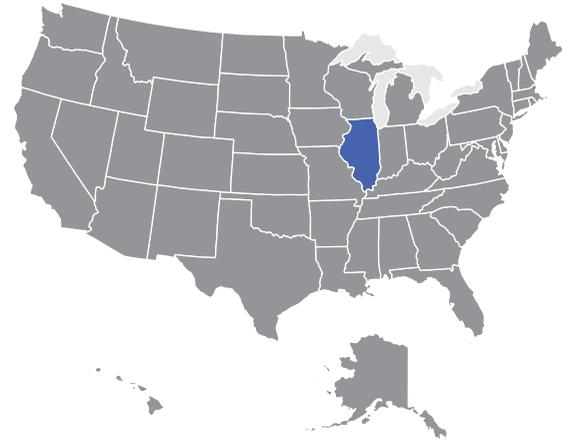
End-to-End Optical Product Delivers High-Speed Data *(Naperville)*

NASA's Illinois Commercialization Center helped initiate a partnership with Access Optical Networks, Inc. to analyze patterns in holographic images. Access Optical teamed with NASA to proof test the high-speed data processing capabilities of its optical area network product. Following successful testing, Access Optical developed a family of optical peripheral equipment that resolves data rate mismatches between networks and computer interfaces at 60 percent lower costs than competitor solutions.



Bigger Results from a Smaller Gearbox *(Blue Island)*

NASA scientists developed a planetary gear system that provides precise nanometer positioning capabilities while reducing size, parts, and cost. The technology provides more even gear distribution loading and a higher gear ratio in a smaller package. The NASA Illinois Commercialization Center licensed this technology to Turnkey Design Services, LLC who plans to use it as a planetary speed reducer for electric motors and envisions applications in the aerospace and automotive industries.



NASA actively seeks partnerships with U.S. companies that can license NASA innovations and create "spinoffs" in areas such as health and medicine, consumer goods, transportation, renewable energy, and manufacturing. When businesses leverage NASA technologies to develop new products, it not only benefits the regional economy, but significantly strengthens the nation's competitiveness in the global marketplace.

NASA's centers across the country have helped 103 Illinois companies develop revolutionary spinoff technologies.

Learn more about how NASA innovations benefit the public in *Spinoff*, an annual publication that highlights NASA's most significant technology transfer successes. (Available at: <http://www.sti.nasa.gov/tto>)

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