Industry Partnerships Fuel GTMI

Translating concepts into manufacturable and marketable reality for industry patients is one of GTMI’s most important public service roles. Many companies engage in collaborative relationships with Georgia Tech and its partners to develop important, new results that are ready-to-market in the industrial sector. GTMI works with companies of all sizes and kinds, and supports their innovation through meaningful collaborations. Research projects are defined in association with GTMI, Georgia Tech partners and industry partners to address critical R&D needs in a timely manner. Projects provide core R&D to both academic and industrial sponsors that can be delivered in a cost-effective, ethical and transparent manner.

WePartner with: Boeing, Ford Motor Company, America’s Compete, Georgia-Pacific, GE Aviation, Northrop Grumman, GE Healthcare, Georgia Power, General Electric, Ingersoll Rand, Georgia-Pacific, Siemens, and U.S. Army RDEC.

A Major Outcome

Georgia Tech-Boeing Strategic University Partnership Provides Model for Multi-Disciplinary Work

Georgia Tech and Boeing have a long history of successful collaboration and have formed a formal strategic relationship in 2005. Georgia Tech School of Aerospace Engineering, Materials Science and Engineering, Mechanical Engineering, Electrical Engineering, and Computer Science are all contributing to the program.

The major outcome of this partnership is to develop a channel from which manufacturers will be able to hire highly-skilled workers. The program is leading the way in developing the skill set and knowledge of the manufacturing workforce; and 2) identify pathways for enrollment of talented TCSG graduates into Georgia Tech engineering and other STEM-related programs. The program is funded by the R.E.V.E.N. (Redefining Excellence Through Engineering and Nurturing) program which is a joint initiative by the Georgia Tech Manufacturing Institute and Boeing. The program’s focus is to develop a21st Century Advanced Manufacturing Workforce.

We focus on the complete innovation value chain - from research to manufacturing, including systems, processes, equipment, and policies that impact manufacturers' performance in the state.

This 2014 Annual Report highlights the progress of many collaborative relationships and partnerships that are transformational to the state and their impact on Georgia businesses and the workforce.

2014 GTMI Annual Report

For more information, visit www.manufacturing.gatech.edu.


2014 GTMI Financials:

Georgia Tech Manufacturing Institute。

GTMI Industry Partners:

Georgia-Pacific, America’s Compete, GE Aviation, Northrop Grumman, GE Healthcare, Georgia Power, General Electric, Ingersoll Rand, Georgia-Pacific, Siemens, and U.S. Army RDEC.

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Dr. Ben Wang, GTMI executive director.

Industry Partnerships Fuel GTMI

Transforming world-class research into real-world value for industry partners is one of GTMI’s most important goals. Industry partnerships are supported through a competitive, application-based process. GTMI’s mission is to provide strategic solutions to industry partners and generate insights that are valuable to them, and their insights on the future of manufacturing are shaping the areas of focus for long-term projects, ranging from several months to a few years. Research projects are defined in association with partner companies and when initiated, ongoing project interaction is maintained between the sponsoring company and GTMI.

Research and technology developed at GTMI in recent years include: 3D printing, additive manufacturing; robotics; automation; sensors; and environmental sustainability.

Ben Wang

Our partners provide not only vital financial support, but they also play an active role in GTMI’s strategy to efficiently transform world-class research into real-world value for industry partners. In addition to industry partners, academic and non-profit organizations have valued the opportunities to collaborate with the Georgia Tech Manufacturing Institute.

You can always call or email us. Also, be sure to visit our website at manufac.gatech.edu to learn more about the services and resources we provide to our Industry Partners.

GTMI Industry Partners Enjoy Many Benefits, Including:

• Access to laboratories for demonstrations and visits prepared and scheduled through the partnership
• Direct involvement in the development of new technologies and applications
• Direct access to expert technical services and advice
• Assistance in the transition of basic discoveries in manufacturing science into innovative commercial products and processes
• The opportunity to define and solve some of the greatest challenges facing U.S. industry today:
  - Cost
  - Performance in the marketplace.

GTMI’s educational programs give students the critical knowledge and hands-on experience necessary to succeed in a rapidly changing manufacturing environment. These programs include: Georgia Tech Manufacturing Institute (GTMI) Undergraduate Research Opportunity for Student Veterans in Advanced Manufacturing and Entrepreneurism; REU Site for Undergraduates in Manufacturing Innovation; Language, Culture and Advanced Manufacturing Summer Immersion Program; Manufacturing Scholarships; Manufacturing Industry Internships; Manufacturing Research Internships; Manufacturing Innovation Options;

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GTMI members enjoy a variety of benefits and perspective opportunities.

GTMI Industry Partners enjoy many benefits, including:

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GTMI Industry Partnerships

GTMI is a small enterprise in the field of advanced manufacturing research and development, working closely with industry partners to advance cutting-edge technologies and foster innovation. Our partnerships are critical to our mission, as they provide the necessary resources to conduct research, develop new technologies, and bring them to market.

Our partnerships are diverse, including companies of all sizes, from startups to large multinational corporations. We believe in building long-term relationships with our partners, based on trust, mutual respect, and a shared vision of success. Our partnerships are tailored to meet the unique needs of each company, whether they are focused on a specific technology, a market opportunity, or a particular technical challenge.

In return for their support, our partners receive access to cutting-edge research, technology development, and a dedicated team of experts. They also benefit from regular updates on our progress, opportunities to collaborate with other partners, and a platform to showcase their work.

We are proud to work with companies from a variety of industries, including aerospace, automotive, biotechnology, defense, energy, medical devices, robotics, and more. Our partnerships are driven by a commitment to collaboration, innovation, and excellence, and we are confident in our ability to achieve meaningful outcomes together.

GTMI looks forward to continuing to build and strengthen our partnerships in the years to come. We invite interested companies to reach out to us to learn more about how we can work together to drive innovation and impact in advanced manufacturing.

Contact Information

Georgia Tech Manufacturing Institute
813 Ferst Drive, N.W.
Atlanta, GA 30332-0560
404.894.9100

Email: info@gtmi.gatech.edu
Website: www.gtmii.gatech.edu

You can always call or email us. Also, be sure to visit our website for more information.

GTMI Industry Partners

Industry Partnerships

GTMI offers opportunities to speed up the time it takes to commercialize manufactured products and produce them more commercially.

GGAMCA receives funding from the National Science Foundation and other federal agencies for basic research in advanced manufacturing technologies. It supports a range of activities, including research projects, workshops, and conferences. The mission of GGAMCA is to advance the understanding and development of advanced manufacturing technologies, and to educate the next generation of manufacturing professionals.

GGAMCA partners with a variety of organizations, including industry leaders, academic institutions, and government agencies, to achieve its goals. Its members include leading companies in the aerospace, automotive, electronics, and energy sectors, as well as universities and research institutes.

GTMI is proud to be a part of the GGAMCA network, and we look forward to continuing to collaborate and innovate with our partners in the future.

GTMI Strategic Plan

GTMI is in the process of developing a strategic plan to guide its growth and development over the next five years. This plan will include a vision and mission statement, as well as goals and objectives for different areas of focus, such as research, education, and outreach.

The strategic plan will be developed in consultation with key stakeholders, including industry partners, academic institutions, and government agencies. It will be a living document, updated regularly to reflect the changing needs and priorities of our partners and the field of advanced manufacturing.

We encourage interested parties to reach out to us to learn more about the strategic planning process and how they can be involved in shaping the future of GTMI.

GTMI Vision

GTMI is committed to being a leading center of excellence in the fields of advanced manufacturing research and development. Our vision is to be the go-to resource for companies and researchers seeking to advance the state of the art in advanced manufacturing technologies.

Our vision is to create a dynamic and vibrant community of manufacturers, researchers, and thought leaders, working together to drive innovation and impact in advanced manufacturing.

GTMI Mission

GTMI is dedicated to advancing the field of advanced manufacturing research and development through a range of activities. Our mission is to:

1. Conduct high-quality research in advanced manufacturing technologies
2. Educate the next generation of manufacturing professionals
3. Foster collaboration and innovation among stakeholders
4. Support the development of advanced manufacturing technologies
The potential business benefits of the next generation of advanced composites are compelling. However, we cannot have affordability without the enabling technologies. GTMI would like to see a manufacturing program that supports the development of these processes and make them affordable for all sizes of companies. The CAIIAC roadmap will provide a plan to speed up the time it takes to apply research on advanced composites to solve manufacturing challenges and improve the economic viability of U.S. companies of all sizes.

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Cyber-Enabled Direct Digital Manufacturing of Gas Turbine Engine Hot-Section Components

Lumense Inc. is an Advanced Technology Development Center (ATDC) located in Delaware, Ohio, and is supported by the Ohio Development Services (ODS) and the U.S. Department of Energy (DOE). Lumense has developed a new, innovative sensor technology that can be used to improve the performance of gas turbines used in aircraft and on land.

**Problem:**
Cyber-enabled direct digital manufacturing of gas turbine engine hot-section components.

**Solution:**
Lumense has developed a new sensor technology that can be used to improve the performance of gas turbines used in aircraft and on land. The technology uses novel polymers, which are the rate-limiting step for device manufacturing.

**Benefit:**
The technology is anticipated to positively influence Lumense's commercial success and economic impact by improving poultry growth and yield while reducing feed and maintenance costs. The project is supported and co-sponsored by the Office of Naval Research (ONR) under the Small Business Innovation Research (SBIR) program.

**Another Example:**
Cyber-enabled direct digital manufacturing of gas turbine engine hot-section components.

**Problem:**
Lumense is a company that develops and produces a range of optical materials and chemical sensor components that serve as real-time chemical and biological sensor platforms. Novel polymers are the rate-limiting step for device manufacturing.

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Cyber-enabled Direct Digital Manufacturing of Gas Turbine Engine Hot-Section Components

Problem: Current manufacturing methods for gas turbine engine hot-section components are costly, low-volume, and have low reliability. Current methods typically involve casting or welding components together and then subjecting them to high temperatures. These methods can result in defects and require significant time and cost to produce engine components.

Solution: The Cyber-enabled Direct Digital Manufacturing (Cyber-EDM) project aims to create a system that can directly fabricate gas turbine engine hot-section components using additive manufacturing processes. The system will allow for rapid prototyping and testing of engine components, reducing development time and costs.

Solutions:
- The Cyber-enabled Direct Digital Manufacturing (Cyber-EDM) project will create a system that can directly fabricate gas turbine engine hot-section components using additive manufacturing processes.
- The system will allow for rapid prototyping and testing of engine components, reducing development time and costs.
- The system will be able to handle high-temperature and high-pressure environments, making it suitable for gas turbine engine applications.
- The system will be able to produce components with high precision and low defect rates, improving engine performance and reliability.
- The system will be able to produce components at a lower cost than traditional manufacturing methods, reducing the overall cost of engine production.

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Advanced Extreme Tribology

The Advanced Extreme Tribology (AET) group is a research team focused on understanding and improving the performance of materials and components that operate in extreme environments. The team conducts research on a wide range of topics, from tribological behavior in high-speed machining to the design of materials for use in harsh environments.

The AET group is led by Dr. John Smith, a professor of mechanical engineering at the University of Texas. The group has received funding from several government and private sources to support its research.

The AET group is located in a state-of-the-art facility equipped with advanced instrumentation and equipment. The facility includes a high-speed machining facility, a high-temperature testing rig, and a variety of other tools and equipment.

The AET group has a strong track record of success in its research, and has published numerous papers in leading journals. The group has also received several awards for its research, including the IEEE Tribology Award for Outstanding Research in Tribology.

The AET group is always looking for new opportunities to collaborate with industry and government partners. If you are interested in working with the AET group, please contact Dr. Smith at john.smith@utexas.edu.
Consortium for Accelerated Innovation and Insertion of Advanced Technologies (C-AI2T) Funded by the Office of Naval Research (ONR) through theбыт of the Naval Air Systems Command and the Air Force Office of Scientific Research (AFOSR), C-AI2T is a national, multi-university, multi-disciplinary, multi-disciplinary initiative to apply advanced manufacturing, materials, and computational techniques and tools to solve problems that traditional manufacturing techniques cannot. C-AI2T is focused on developing and demonstrating advanced capabilities for manufacturing, materials, and computational tools and techniques that can be applied to a wide range of industries, including defense, aerospace, automotive, and energy. The consortium includes leading universities, national laboratories, and industry partners who work together to develop and demonstrate innovative solutions to complex manufacturing problems. The ultimate goal of C-AI2T is to enable rapid technology transfer to industry, leading to faster time-to-market, lower costs, and improved performance of advanced technology products.
GTMI Strategic Plan

A Major Outcome

For the past two years, GTMI has focused on developing a Strategic Plan. The goal of the Strategic Plan was to better focus GTMI’s resources and ensure alignment with internal and external stakeholders. The GTMI Strategic Plan was developed with input from the Industry Partner Board, the External Advisory Board, and the Internal Advisory Board. A team consisting of the Executive Director Ben Wang, Keith Morgan, Chris Markwardt, and Dave Eggers was responsible for developing the Strategic Plan.

GTMI Industry Partners Forum

Transferring ideas from research and real-world collaboration into GTMI’s most important projects. GTMI is fortunate to have a number of active research collaborations. These collaborations are a result of our partnerships with industry, government, and academia. Our partnerships provide the opportunity to translate our research into products that can be utilized by our industry partners. In this section, we describe some of the key research collaborations that GTMI is involved in.

• Aurora: Information for innovation and cross-border production and value creation through partnerships.
• Innovations with GTMI are outside industry and academia, and they are environmentally friendly.
• Our partnerships provide the opportunity to translate our research into products that can be utilized by our industry partners.

GTMI’s Industry Partners Forum is a platform for sharing information and experiences related to research and innovation. The forum is designed to facilitate collaboration among industry partners, government, and academia. The forum includes discussions on industry trends, research opportunities, and best practices.

GTMI welcomes the opportunity to share information and experiences related to research and innovation. We encourage industry partners to participate in our Industry Partners Forum to learn about new and emerging technologies and to collaborate on research projects.

For more information, please contact the GTMI Industry Partners Forum at info@gtmi.gatech.edu.