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Siemens Expands Georgia Tech Partnership to Drive Advanced Manufacturing Research, Software and Innovation

- **Siemens continues more than 200 million dollar in-kind software grant to prepare future manufacturing and engineering workforce**

- **New research partnership bolsters longstanding relationship – more than $3 million, inclusive of government funding, has gone towards joint initiatives over past 3 years**

- **First keystone project under new relationship federally-funded by more than $1 million through the AmericaMakes program**

Siemens announced today an expanded partnership with Georgia Institute of Technology (Georgia Tech), building upon a nearly two-decade relationship pursuing manufacturing innovation through software, conducting frontier-pushing research that supports digital product development, and preparing students to enter the science, technology, engineering and mathematics (STEM) workforce of the future.

"Georgia Tech is one of the leading research institutions in this country, paving the way for new ideas and technologies to help redefine the way we manufacture goods, power our homes, travel through space and more," said Eric Spiegel, president and CEO, Siemens USA. "Building upon our strong relationship, this comprehensive partnership will continue to produce cutting-edge research and innovative industrial automation and digitalization software, while preparing highly trained students to join the global manufacturing workforce."

This full spectrum partnership will continue to push the boundaries of advanced manufacturing design, automation and innovation. One example where this vision is currently being realized is the Georgia Tech Aerospace Systems Design Laboratory. Students there are using Siemens' product lifecycle management (PLM) software to create a virtual prototype of a modern gas turbine. This virtual prototype will help engineers to cost-effectively design the next generation of high efficiency gas turbines while minimizing carbon emissions.

Part of this expanded relationship includes naming the school a Siemens Center of Knowledge Interchange (CKI) partner. As a CKI, Georgia Tech joins a global group of eight elite research universities, including the University of California, Berkeley, in the U.S. CKIs represent primary research partners with Siemens conducting onsite research and development at the university.

"Georgia Tech and Siemens have enjoyed a long productive relationship, working together in everything from advanced manufacturing to engineering software used in the curriculum," said Georgia Tech President G. P. "Bud" Peterson. "As a Siemens CKI partner, we look forward to expanding our collaborative efforts to further drive advanced manufacturing research, software and innovation," he said.

Over the past three years, Georgia Tech has partnered on more than 20 projects from manufacturing to healthcare to energy, including joint government-funded collaborations. Among the first in the expanded partnership is a project to address gaps in existing additive manufacturing design-to-print workflow. The project – performed in collaboration with Siemens Corporate Technology (CT), Siemens PLM Software, and Siemens Power and Gas – falls under the America Makes initiative, a federally-funded program from the National Additive Manufacturing Innovation Institute (NAMII). The $1 million government grant is bolstered by an additional $400,000 in-kind grant of PLM software licenses.

A second banner project Georgia Tech and Siemens will embark upon revolves around enhancing Siemens PLM Software's Jack™ software in the Tecnomatix® portfolio. Jack, a human simulation software, provides realistic digital human avatars to simulate manual workplace processes for evaluation of efficiency, ergonomics and safety. The project aims to significantly increase productivity for Jack users by enhancing the ability to predict interactions of virtual humans with simulated digital factory environments. The project will use algorithmic shape processing and action optimization to further simplify simulation creation, and enable human centered workplace design on a broader scale than previously possible.

These two projects are the latest in nearly two decades of research partnerships between Siemens and Georgia Tech, and are part of a larger Siemens footprint:

- Since 1996, through its GO PLM academic partner program, Siemens has provided the university access to PLM software for its engineering curriculum with an in-kind, commercial present value of over $200 million.
- Over the past three years, Georgia Tech has partnered with Siemens on more than 20 projects exploring innovation and research topics from energy to software to healthcare.
- Through Siemens' Digital Factory and Process and Drives divisions - both headquartered in the Atlanta metro region - Siemens Cooperates with Education (SCE) partners with George W. Woodruff School of Mechanical Engineering to provide automation technology that supports its core Mechatronics, Manufacturing and Automation curriculum. In addition, a unique curriculum was developed by professors and graduate students using Siemens' Totally-Integrated-Automation (TIA) Portal software and conveyor systems to offer students hands-on experience on industrial automation technologies.
- Through the SCE partnership, Georgia Tech has also implemented Siemens programmable logic computers (PLC) with Siemens SIMOTION components into a research laboratory to simulate real life challenges for many factories and warehouses. For example, the Georgia Tech "Cherry Picker" crane – a well-known and emulated project – uses SIMOTION technology to address the common industry issue of anti-sway control in boom cranes.
- Siemens recruits approximately 30 students from Georgia Tech per year, primarily via 15 different technical training programs that lead to direct hire upon completion.

For more than 15 years, the Siemens Foundation has collaborated with the university's Center for Education Integrating Science, Mathematics and Computing (CEISMC) to cultivate tomorrow's leaders in STEM. From improving K-12 science and math education in underserved communities to being a host of the prestigious Siemens Competition in Math, Science and

Technology, preparing students at all levels for the future of manufacturing is at the core of the collaboration.

Siemens and Georgia Tech's newly strengthened partnership was announced at *Bold Bets: Commercializing the Cosmos*– an event held by *The Atlantic* at Georgia Tech that focused on how private and government partners can work together to create and fully develop an autonomous commercial space market. The event was underwritten by Siemens.

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The Georgia Institute of Technology, also known as Georgia Tech, is one of the nation's leading research universities, providing a focused, technologically based education to more than 25,000 undergraduate and graduate students. Georgia Tech has many nationally recognized programs, all top-ranked by peers and publications alike, and is ranked in the nation's top 10 public universities by U.S. News and World Report. It offers degrees through the Colleges of Architecture, Computing, Engineering, Sciences, the Scheller College of Business, and the Ivan Allen College of Liberal Arts. As a leading technological university, Georgia Tech has more than 100 centers focused on interdisciplinary research that consistently contribute vital research and innovation to American government, industry, and business.

Siemens Corporation is a U.S. subsidiary of Siemens AG, a global technology powerhouse that has stood for engineering excellence, innovation, quality, reliability and internationality for more than 165 years. With 343,000 employees in more than 190 countries, Siemens reported worldwide revenue of approximately $98 billion in fiscal 2014. Siemens in the USA reported revenue of $22.2 billion, including $5.2 billion in exports, and employs approximately 50,000 people throughout all 50 states and Puerto Rico.

"Shaping the Future – with Passion for Research, Technology and Innovation" – this is the mission of Siemens Corporate Technology (CT). Under the leadership of the Chief Technology Officer and in cooperation with the operative units, CT develops the company's technology and innovation strategy, promotes business excellence through consulting and development services, and protects Siemens' intellectual property. As a strategic partner to the company's businesses, CT's central research and development unit plays a key role in advancing Siemens' digitalization strategy. CT supports the company along the entire value chain, from research and development to production technology and manufacturing to the testing of products and solutions.

Siemens PLM Software, a business unit of the Siemens Digital Factory Division, is a leading global provider of product lifecycle management (PLM) and manufacturing operations management (MOM) software, systems and services with over nine million licensed seats and more than 77,000 customers worldwide. Headquartered in Plano, Texas, Siemens PLM Software works collaboratively with its customers to provide industry software solutions that help companies everywhere achieve a sustainable competitive advantage by making real the innovations that matter.

Note: Jack is a trademark or registered trademark of The Trustees of The University of Pennsylvania. Tecnomatix is a trademark or registered trademark of Siemens Product Lifecycle Management Software Inc. or its subsidiaries in the United States and in other countries.