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MONTHLY RESEARCH NEWSLETTER

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JANUARY RESEARCH NEWS

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2023 Annual Report Highlights GTRI Accomplishments, Investments, and Outreach

The digital edition of GTRI's 2023 Annual Report provides an overview of our accomplishments, research investments, and outreach programs. FY23 was a year of rapid growth and continued progress for our team. Government and industry sponsors awarded GTRI a record $941 million, showing confidence in our science and engineering expertise that is used to turn ideas into workable solutions that fulfill GTRI's mission of enhancing Georgia's economic development, securing our nation, improving the human condition, and educating future technology leaders.

GTRI, Children's Healthcare of Atlanta and Emory Use Wearable Sensors to Address Healthcare Worker Burnout

Healthcare worker burnout, a topic that received significant attention during COVID-19, continues to pose risks for the nation's health and economic wellbeing. To address this challenge, GTRI, Children's Healthcare of Atlanta, and Emory University's Nell Hodgson Woodruff School of Nursing have conducted a study using wearable sensors to better understand how the interplay of workload, stress, and sleep contribute to an elevated risk of burnout among healthcare workers and how to mitigate those risks going forward.

## ARCM Facilitates Update of Radio Control System for Army's UH-60M

Using a model-based systems engineering approach, GTRI researchers are developing the software necessary to integrate new control, radio, and cryptographic capabilities into UH-60M Black Hawk helicopters, which are mainstays of the U.S. Army's helicopter fleet. The Aviation Radio Control Manager (ARCM) software will enable the sustainment of enduring fleet aircraft by employing a Modular Open

Systems Approach (MOSA) to replace obsolete, out-of-production radio equipment and set the stage for future communications suite enhancements.

[GTRI Develops Machine Learning Operations Platform to Streamline Data Management for the DoD](#)

Machine learning has transformed the digital landscape with its unprecedented ability to automate complex tasks and improve decision-making processes. However, many organizations still rely on time-consuming methods for developing and testing machine learning models. GTRI is addressing this challenge by developing a Machine Learning Operations (MLOps) platform that standardizes the development and testing of models to enhance the speed and efficiency with which they are utilized during real-time decision-making situations.
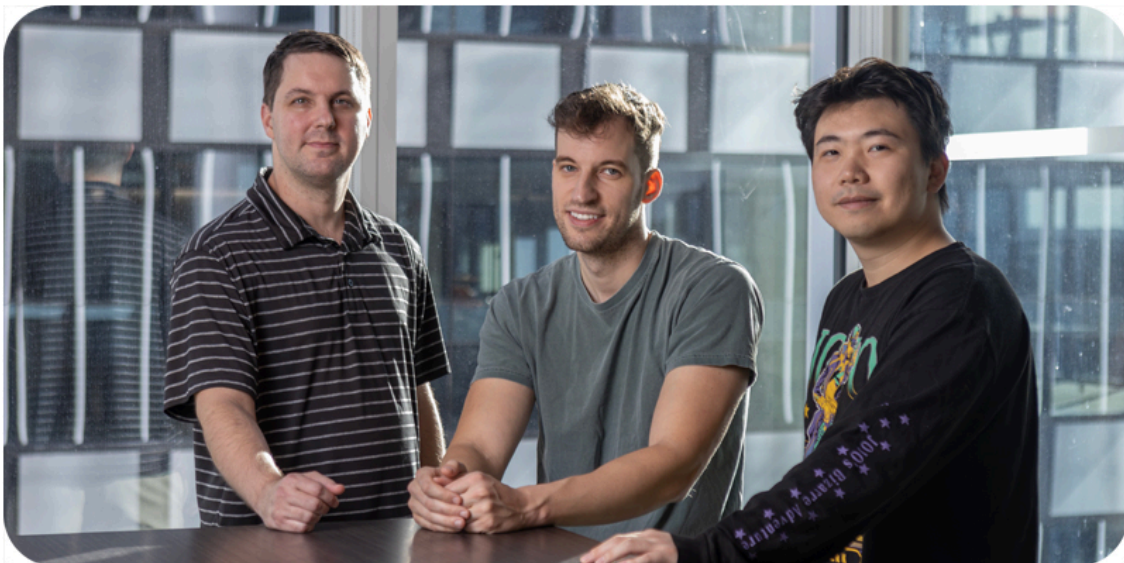
[GTRI, Georgia Tech Use Quantum Computing to Optimize CFD Applications](#)

While quantum computing is still in its early stages, it has the power to unlock unprecedented speed and efficiency in solving complex computational fluid dynamics (CFD) problems that could revolutionize several industries, including the defense

space. GTRI and Georgia Tech researchers are exploring how the powerful processing capabilities of quantum computers can expedite CFD's resource-intensive simulations used in aircraft design, weather prediction, nuclear weapons testing, and more.

FEATURED

[Digital Inspection Portal Uses AI and Machine Vision to Examine Moving Trains](#)

Collaboration between Norfolk Southern Corporation and GTRI has led to the development of digital train inspection portals that use advanced machine vision and artificial intelligence to examine trains moving at speeds of up to 60 miles per hour to identify mechanical defects that may exist. Machine vision technology in the portals produces images of key components located on the front and back, top, bottom, and sides of train cars, providing a 360-degree view of the complete train.

GTRI PEOPLE
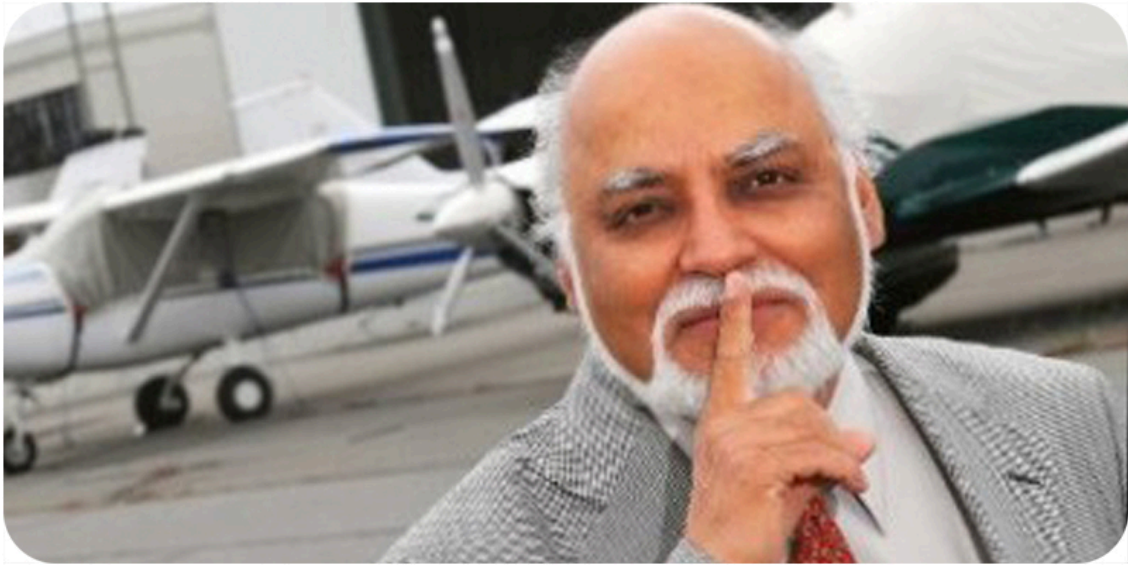
[GTRI Joins Acoustics Journal in Celebrating Krish Ahuja's Groundbreaking Career](#)

The International Journal of Aeroacoustics has recently published a special issue dedicated to Krishan "Krish" Ahuja, marking 50 years of his groundbreaking research in the field of acoustics. This recognition from this prestigious journal is a testament to Ahuja's significant contributions and the global impact of his work, which has largely been conducted at the world-class aeroacoustics facilities of GTRI.

[CIPHER Researchers Take Second Place in Southeastern Cyber Cup](#)

Three GTRI researchers made it to the finals and came home with second place in the "Southeastern Cyber Cup" competition, a multi-day, national-level, higher education competition and cyber hacking event held last month. The three researchers are Justin Hsu, Garrett Brown, and Drew Petry. Their team, named the "Clockcycles," was one of the 15 finalists in the event.

GTRI IN THE NEWS

[Radar Data Processing Just Got Better](#) (AFCEA Signal)

[Public insurance claim database will give a better look at health care access in Georgia](#) (Georgia Public Broadcasting)

[Want to Store a Message in DNA? That'll Be $1,000](#) (Wired – Subscription may be required)

[New research study could lead to better flu virus protection for warfighters, public](#) (Air Force Medical Service)

FEATURED VIDEO

Digital Inspection Portal Uses AI and Machine Vision to Examine Moving Trains

Collaboration between Norfolk Southern Corporation and GTRI has led to the development of digital train inspection portals that use advanced machine vision and artificial intelligence to examine trains moving at speeds of up to 60 miles per hour to identify mechanical defects that may exist. This video provides an overview of the system.

For more research news and features, please visit the **[GTRI Newsroom](#)**

GTRI is hiring. Learn more at **GTRI.gatech.edu/careers**

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