



# GE Aerospace

## World-Class Talent Delivering First-Class Innovation

Every two seconds an aircraft powered by GE Aerospace technology takes flight. This impressive reality is rooted in GE's 100+ year legacy of innovation and embracing the unconventional; a history that started with Thomas Edison and continues today through GE Aerospace's current generation of researchers and engineers.

GE Aerospace Research is a truly unique multi-disciplinary industrial research lab, unlike any in the aerospace sector.

As a research organization, we're focused on elevating the aerospace industry even higher by delivering breakthrough technologies that increase engine performance, efficiency, and sustainability in the skies. We're developing next-generation artificial intelligence (AI) and applying it in ways that matter for our industry; advancing materials to new levels of durability, lightness, and heat-resistance; breaking new barriers in hybrid electric and hypersonic propulsion; and, delivering differentiated solutions for engine services to better serve our customers around the globe.

**650+** Researchers in Niskayuna, NY + Bangalore, India

**50+** Technical capabilities working in **30** laboratories

### How We Deliver

Our world-class organization is equipped with the most advanced digital and physical tools to accommodate even the most intricate of engineering demands. On occasion, we have even been known to build capabilities where none previously existed. We aren't afraid to roll up our sleeves and take on the biggest challenges in the name of science, passionately pursuing solutions to some of the toughest problems in our field, and keeping our eyes trained on the future of our industry.

**Our mission at GE Aerospace Research is to build collaborative networks to more boldly innovate, problem-solve, and deliver transformational technologies.**

Are you ready to partner with us to define the future of flight?

### We are focused on:

**Today** - Developing technology innovations and step changes with a focus on services to extend time on wing for GE Aerospace's existing fleet.

**Tomorrow** - Advancing propulsion technologies that drive adaptive cycles, digital deployment, new materials, hypersonics, electrification, and sustainment technologies.

**The Future** - Exploring emerging platforms such as reusable hypersonics, third wave artificial intelligence, autonomy, and space-related technologies.

### How We Operate

GE Aerospace Research has the spirit, ambition, and means to deliver now, in the near term, and for decades to come. Collaboration is key, and to deliver on our mission, we partner with engineering teams across the GE Aerospace enterprise as well as with other external partners, both inside and outside the aviation industry.

One of our most important and valued partners is the U.S. Government. We share many of the same strategic interests and are currently executing roughly **\$200 million in active programs** with various government agencies. Together with our network of academic and national laboratory partners, we are in constant pursuit of advancing the next generation of sustainable flight, developing future defense and space system capabilities, and exploring other disruptive technologies of relevance to our industry and our nation.



## In-Flight Innovation

### GE Aerospace Research's Technology Footprint

For decades, GE Aerospace Research has been delivering innovative breakthroughs in novel materials, advanced propulsion, and digital technologies. Our ability to differentiate and scale new technology has enabled GE Aerospace to lay claim to several industry firsts.

### GE Aerospace was the first to...

- **2023:** Demonstrate rig-scale hypersonic dual-mode ramjet (DMRJ) with rotating detonation combustion (RDC) in a supersonic flow stream; highlighting potential to enable reusable, high-speed, long-range flight with increased efficiency.
- **2023:** Incorporate artificial intelligence (AI) blade inspections at maintenance, repair, and overhaul (MRO) shops; cutting processing times in half, increasing detection rates by 45%, and halving the number of false alerts.
- **2016:** Industrialize Ceramic Matrix Composites (CMCs) and 3D-printed additive parts in the hot section of a commercial aircraft engine with the introduction of the \*CFM LEAP engine; enabling 15% more fuel efficiency than its predecessor.
- **1994:** Deploy components made of lightweight carbon composites, first introduced on the GE90 engine; reducing the weight of the engine by several hundred pounds to deliver higher efficiency.

### ...and is looking to the future of:

**Sustainability** – We're committed to delivering step changes in engine efficiency and performance to help achieve the aviation industry's goal of net-zero skies by 2050.

**National Defense** – We're inventing the technologies to help the U.S. lead in hypersonic propulsion, while delivering new solutions to enhance military fleet readiness.

**Space** – We're shooting for the stars by delivering new breakthroughs in propulsion, high temperature materials, and electronics that expand the reaches of space exploration.

**Technological Disruptors** – We're inventing and applying revolutionary applications of AI and computing methods to not just transform how we work, but the end products and services to redefine the future of flight.

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