

PROGRAM OVERVIEW

Engineering Tomorrow's Poultry and Food Processing Industries

For more than three decades, researchers in Georgia Tech's Agricultural Technology Research Program (ATRP) have worked closely with Georgia agribusiness, especially the poultry industry, to develop new technologies and adapt existing ones for specialized industrial needs.

The program's goal is to improve productivity, reduce costs, and enhance safety and health through technological innovations.



ATRP conducts state-sponsored and contract research for industry and government agencies. The program is also noted for its strong commitment to industry service. Researchers focus efforts on both immediate and long-term industrial needs, ranging from advanced robotic systems to improved wastewater treatment technologies to machine-vision grading and rapid microbial detection.



At the same time, the program provides a training ground for talented undergraduate and graduate science and engineering students who will be needed in tomorrow's industry. With guidance from the Georgia Poultry Federation, ATRP also conducts a variety of outreach activities to provide the industry with timely information and technical assistance.



ATRP is conducted in cooperation with the Georgia Poultry Federation with funding from the Georgia Legislature.

INDUSTRY OUTREACH

Technical Assistance

ATRP engineers provide engineering technical assistance at no charge to members of the Georgia poultry industry. Designed to help companies and individuals who do not otherwise have access to engineering expertise, this program draws upon engineers and consultants from the Georgia Tech community in a variety of specialized areas, such as automation, waste management, ergonomics, economic impact, and plant safety and health.



More than 30 technical assists are provided annually to firms and individuals across the state. These assists range from simple inquiries regarding information or help needed to address a problem to extensive on-site consultation, in which researchers analyze a problem and provide a full report of their findings and recommendations. The program uses input from these assists to gauge opportunities calling for new research initiatives.

Technology Transfer & Outreach

ATRP uses newsletters, seminars, research reviews, topical reports, research reports, technical papers, and articles in industry trade publications to transfer its research findings and expertise. Specifically, the program produces *PoultryTech*, a newsletter published three times a year and distributed free of charge to subscribers. ATRP, in conjunction with the Georgia Poultry Federation, the National Chicken Council, and the National Turkey Federation, annually hosts the National Safety Conference for the Poultry Industry. Each year, more than 90 safety professionals and exhibiting vendors from across the United States attend the three-day conference, which provides a national forum for information transfer on safety management in the poultry industry.

For More Information

To receive *PoultryTech*, to request technical assistance, or to learn more about ATRP's research and development programs, contact:

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Agricultural Technology Research Program



Engineering Tomorrow's Poultry
and Food Processing Industries

RESEARCH AND DEVELOPMENT AREAS

Automation

Automation/electronics research studies focus heavily on integrated, “intelligent” automation systems. These systems offer major opportunities to further enhance productivity in the poultry and food processing industries. They incorporate advanced sensors, robotics, and computer simulation and control technologies in an integrated package and tackle a number of unique challenges in trying to address specific industrial needs. Research also focuses on the area of computer vision. As a leader in this exciting research field, the program has already introduced several commercially viable designs. Work has also begun focusing on the emerging areas of stereo 3D, IR, and UV imaging concepts. These technologies, perhaps more than any other, offer the potential to revolutionize the way in which processes are controlled and optimized.



Environmental

Environmental research studies focus on emerging technologies that help to reduce water usage and waste generation. Improved recycling technologies, in particular, are pursued to assist not only in recycling water, but also in recycling marinades, brines, etc., thereby reducing their impact on waste treatment operations. Studies also focus on enhancing an understanding of how waste is generated and how to more effectively remove it from air and water streams. Researchers have also begun to explore activities in the area of value-added byproduct recovery.



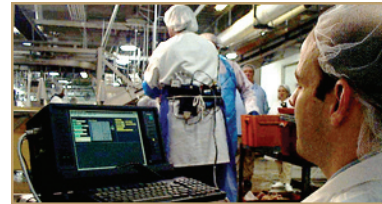
Information Technology

Information technology research studies focus heavily on streamlining the flow of information among machines, people, and the integrated enterprise. Efforts to work with statistical process control and database management concepts are underway. Researchers are also developing practical augmented reality tools capable of simplifying the dynamic transfer of information among production workers, databases, and processing equipment.



Safety

Safety research is divided between two paths. Personnel safety research focuses on finding new ways to reduce the risk of worker injury. Previous research conducted by the program into ergonomic risk quantification demonstrated the value of technology in addressing this challenge. The industry needs a more scientific base for assessing and controlling injury, and the program is committed to helping with this pursuit. Product safety research, on the other hand, focuses on technologies to improve control over process and product quality. The program's efforts to develop an innovative biosensor have been groundbreaking and are transitioning into exploratory studies designed to use it and other such sensing technologies as screening and control systems for microbial intervention and water recycling processes.



PROGRAM RESOURCES

Food Processing Technology Research Building

The Agricultural Technology Research Program is headquartered in Georgia Tech's new Food Processing Technology Research Building. This first of its kind facility at Georgia Tech provides a world-class research center for collaborative food processing technology development, academic research, and public interaction.



The facility currently houses 35,000 square feet of office and laboratory space for research and development in the areas of automation technology, information technology, and environmental systems. The facility also includes a

small prototype fabrication shop, a high-bay test and construction area, a walk-in climate control test chamber for humidity and temperature studies, a 48-seat auditorium, an executive conference room, and a lower lobby with interactive video and computer displays for visitors and school groups touring the building.

An additional wing, in development, will house 10,000 square feet of office and laboratory space for food safety, worker safety, and bioprocessing research activities.

Dedicated Research Laboratories

ATRP operates five research laboratories that address critical evaluation and development needs in today's poultry and food processing industries.

- A state-of-the-art automation research laboratory equipped for studying robotics, computer vision, ergonomics, and process control.
- An electronics systems laboratory for developing specialized computer software and designing and constructing board-level hardware components.
- An environmental laboratory equipped with full chemical and biological analysis capabilities.
- A food safety laboratory for developing and testing state-of-the-art biosensor technologies.
- A multimedia laboratory for developing computer-based training and information technology systems.

A Variety of Professional Skills

On average, ATRP professionals have more than 10 years of experience in poultry and food processing technology, research, and service. Researchers have complementary backgrounds in mechanical, electrical, computer, environmental, and safety engineering; physics; microbiology; and information technology.