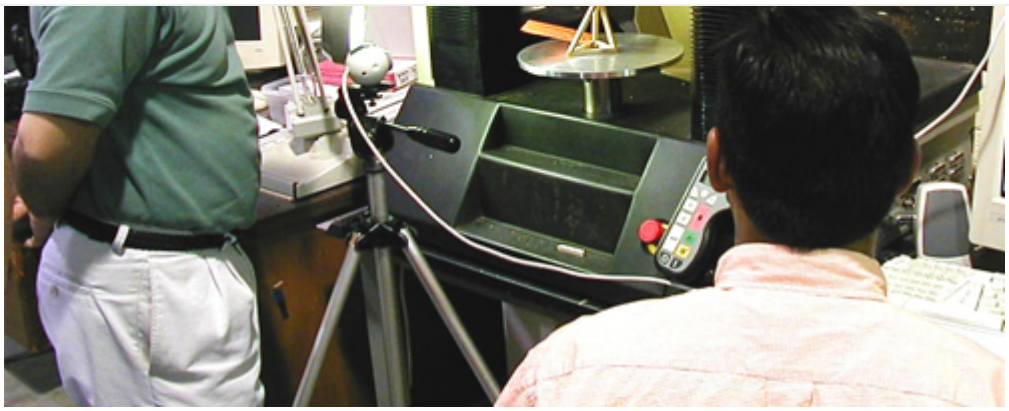
UTRF Inventor Spotlight: Dr. John Wilkerson

Dr. John Wilkerson is a Professor of Biosystems Engineering and Soil Science at the University of Tennessee Institute of Agriculture (UTIA) and a University of Tennessee (UT) graduate, receiving both his bachelor's and master's degrees in agricultural mechanization. He served as an instructor at UT for four years before leaving to pursue his Ph.D. in agricultural engineering at Purdue University. He returned to his alma mater in 1990 to assume a faculty position in the Department of Biosystems Engineering and Soil Science at UTIA. His research interests revolve around sensor

involved designing a cotton yield monitor to help farmers improve their harvest efficiency. Yield monitors play an important role in precision farming by using variables such as nutrient levels and soil characteristics to help farmers identify loss areas in their fields. Dr. Wilkerson and one of his graduate students, Henry Moody, developed a sensor that non-intrusively measures the volumetric flow rate of materials, like cotton, in a confined air stream. Their technology was licensed to Ag Leader Technology and Case IH and was the only cotton monitor available commercially for several years.



Dr. Wilkerson and Mr. Moody also developed a device that measures the hydration characteristics of seeds. With support from UTRF, the technology behind this device was licensed to Bush Beans to help the company determine the optimal length of time to soak their beans during processing.

maintaining the same level of crop protection. In June 2012, the technology was licensed to CapstanAG Systems, Inc., which developed an add-on aftermarket unit, marketed as Seed-Squirter, that can be installed on most makes and models of planters. A second product on the market, called AccuShot, is being manufactured and sold by Great Plains Manufacturing, which partnered with CapstanAG to develop and market their own version of the Seed-Squirter technology.

In addition to his sensor development work, Dr. Wilkerson has worked on a number of projects centered around the early prediction of plant, animal, and environmental health outcomes. For example, Dr. Wilkerson led the development of a monitoring system designed to detect respiratory disease in calves. This device measures a calf's biodynamics and compares the data to other calves of a similar age, enabling users to detect disease two to five days before symptoms appear. He also designed a similar technology for plants that use laser-based sensors to measure a plant's density and growth rate and compares them to similar plants growing close by. In both cases, the resulting technology helps users treat diseased animals and plants early, reducing the need to administer antibiotics and saving fields from being wiped out by disease, respectively.

transported via a weather balloon and uses a microphone pointed to the ground to record the vocalizations of target avian species. In February 2017, the project was named the DoD's Environmental Security Technology Certification Program Project of the Year for 2016.

Dr. Wilkerson enjoys the research and development environment found at UT not only because the university is invested in solving the same kinds of real-world problems he seeks out but because UT encourages its researchers to take their ideas from bench to prototype to field. He is also grateful for the support provided by UTRF licensing staff, who will listen to an idea and then help work through the question of "who cares about this the most?", as well as provide opportunities for researchers to speak with companies that are interested in licensing their technology.

FILED UNDER: MULTI CAMPUS OFFICE, UTIA, UTRF INVENTOR SPOTLIGHT

UT Tower 961A
Knoxville, TN 37902
Phone: 865-974-1882

910 Madison Avenue,
Suite 827
Memphis, TN 38163
Phone: 901-448-7827

University of Tennessee Campuses & Institutes

UT KNOXVILLE UT CHATTANOOGA UT SOUTHERN UT MARTIN UT HEALTH SCIENCE CENTER
UT INSTITUTE OF AGRICULTURE UT INSTITUTE FOR PUBLIC SERVICE UT ALUMNI ASSOCIATION
UT FOUNDATION UT RESEARCH PARK