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Waggoner and Auburn University CPS Pushing the Boundaries of Canine Detection

It would not be an exaggeration — or an insult — to say Dr. Paul Waggoner's research has gone to the dogs. In fact, Waggoner, the co-director of the Auburn University College of Veterinary Medicine's internationally recognized Canine Performance Sciences program (CPS), would no doubt agree. Few researchers in the world have spent as much time developing new technologies and methods for measuring, understanding and enhancing the remarkable olfactory abilities of man's best friend.

The Auburn CPS program's mission is to innovate canine detection technology by exploring basic and applied research frontiers in olfaction, behavior, genetics and physical performance. CPS scientists play a vital role in increasing the capabilities of canine technology for threat detection, including explosives, drugs, chemicals, biological agents and medical conditions. CPS investigates new frontiers in olfaction, neuroscience, genetics and physical performance by exploring the many scientific disciplines that make up canine performance science.

To that end, Waggoner is a co-holder of multiple patents for new technology related to canine training, as well as for better determining the physical processes behind olfaction. This includes a method for creating more realistic training tools; a device to better measure the linkage between cognitive-level neural substrates in conscious dogs and behavior; and a system for observing, collecting and analyzing olfactory characteristics of human or animal subjects. These tools have not only improved scientific understanding of the remarkable olfactory capabilities of canines all the way down to the genetic level but have also helped improve training methods used to enhance and utilize those abilities.

Waggoner and the CPS team also continue to push the boundaries of using canine detection in previously untapped areas. One such area is the real-time detection of pathogens and disease. Tissues infected with pathogens such as viruses or bacteria release biomarkers, or volatile organic compounds, that are detectable by trained canines. Rather than waiting hours or days for traditional testing, detection canines trained using CPS methods may soon provide instant confirmation of the presence of diseases or infection that can then be confirmed by conventional methods. It's just one more example of how, with the help of Waggoner and his fellow researchers in the Auburn CPS program, our much-loved canine friends are helping people in entirely new ways.