

Researchers train dogs to respond to haptic vibration commands

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Ben-Gurion University of the Negev researchers trained a dog wearing a commercially available fabric vest modified with vibration motors, to sit, lay down, go to their handler, or retrieve an object, depending on the vibrational command. A specific pattern can also be used to recall the dog from a distance. The technology may be useful for delivering remote commands to dogs for use in search and rescue, assisting disabled handlers, and other service animal applications. Credit: Jonathan Atari

Dogs can be trained to respond to haptic vibration commands while wearing a modified canine vest developed by an interdisciplinary research team at Ben-Gurion University of the Negev (BGU).

The paper, "Vibrotactile Vest for Remote Human-Dog Communication," will be presented at the World Haptics Conference on July 12 in Tokyo, Japan. Haptics technology simulates the senses of touch and motion, which is especially helpful in a remote operation or computer simulation where the user is not able to interact with and feel [physical objects](#).

The technology may be useful for delivering remote commands to [dogs](#) for use in search and rescue, assisting disabled handlers, and other service animal applications.

"Our research results showed that dogs responded to these vibrotactile cues as well or even better than vocal commands," says Prof. Amir Shapiro, director of the Robotics Laboratory within BGU's Department of Mechanical Engineering. "Our current proof-of-concept study shows promising results that open the way toward the use of haptics for human-canine communication."

The modified, commercially available mesh canine [vest](#) contains four small vibrating motors positioned over a dog's back and sides that can be used to train or direct dogs to respond to different vibrations sent via wireless remote control. The handler can elicit different commands by controlling the site and duration of vibrations. In this demonstration video, Tai, a six-year-old Labrador retriever/German shepherd crossbreed, responds to several distinct commands, such as "spin," "down," "to me," or "backpedal."

The haptic vest may also be used with existing dog training devices that detect posture and automate reward systems. "Integrating devices will allow us to further advance the potential of fully or partially autonomic

dog training to assess general behavior, responsiveness to commands and the effectiveness of rewarding dogs for desired behavior," says Prof. Shapiro.



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Future research will test the haptic vest technology on different breeds,

ages and training experience, and will integrate more advanced devices into search and rescue, military work dog and service dog programs.

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