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Bats in the News - Helping the Blind to See

The young man on the bicycle can't see; a genetic disorder stole his eyesight about a year ago. Yet he maneuvered his mountain bike with a fair bit of confidence around obstacles and along a twisting woodlands path – thanks to bats and the very impressive technology they inspired.

Dan Smith, a blind 21-year-old aeronautical engineering student at the University of Bristol in the United Kingdom, was featured on a BBC television series called *Miracles of Nature*.

The natural "miracle" in this case is echolocation, the biosonar system that bats use to dodge obstacles and chase down fast-flying insects in the dark. The bats emit ultrasonic pulses, then analyze the echoes that bounce back to build a "picture" of whatever is in front of them.

Then the program and host Richard Hammond took another step and explored a sort of techno-miracle – the Ultracane developed in the UK by Sound Foresight Technology as a sophisticated "mobility aid" for the blind. The cane mimics bat echolocation by emitting ultrasonic waves (which people cannot hear) through two transducers in the handle. It gathers and uses the echoes to detect objects in the user's path, signaling the presence, proximity and height of obstructions through two vibrating buttons on the handle.

The company says its Ultracane "gives users more knowledge about their environment and enables them ... to move around much more confidently."

That's where Dan Smith comes in. *Miracles of Nature* asked the experienced bicyclist if he's willing to try riding along a trail on a mountain bike fitted with the Ultracane technology. The bike's handlebars vibrate to signal obstacles on the left, right or center.

Dan agreed and, with the cameras running, safely completed his epic ride. "I had to concentrate really hard," he said in a news release from the University of Bristol. "But it was great to be able to independently ride a bike again.

"I was pretty skeptical at first, coming from an engineering background, but I was blown away by how effective the bat-echolocation technology was."

Information on the bat-inspired Ultracane is available at ultracane.com.

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MediaBlindCyclist.jpg: Dan Smith, who is blind, rides a bicycle that lets him 'see' through technology that mimics the echolocation system of bats. Courtesy of Ruth Badley PR

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