

# The New World of Digital Smell

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Did you know that scent is the only one of the five classical senses whose signal goes directly to the brain? Or that some people claim to recall experiencing odors while dreaming? Or that new studies indicate that processing different types of odors may improve the plight of people suffering from Parkinson's disease and Alzheimer's disease? Or that a new phone app will soon deliver a variety of aromas to improve your mood while driving?

All of this and more was presented by inventor and Harvard professor David A. Edwards, Ph.D., the featured speaker in "What Emotion Smells Like," the most recent topic in the Brainwave Series at the Rubin Museum in New York City. With his curly hair, thin frame, energy, and enthusiasm, I imagined Edwards as the son of Emmet "Doc" Brown, the fictional mastermind behind time travel in the *Back to the Future* films. Edwards's mission, as he put it, is "to deliver the immersive and magical experiences of scent digitally."



David A. Edwards. Photo courtesy of the Rubin Museum.

He and his team, in collaboration with researchers from International Flavor and Fragrances, have spent the last three years creating a blue-tooth device they appropriately call Cyrano, "a platform of aromatic communication" that is in the shape of a white, plastic cylinder and is triggered by a phone app called oSnap, which Edward likened to an "i-Tunes for scent." He demonstrated it by passing several Cyrano's through the audience. The device emitted a variety of pleasant odors, and the types of scents coming from it were listed on a large screen in front of the room. The audience members were then asked to identify scents such as coconut, lilac, guava, vanilla, and others.

Edwards's original focus was to create ways to inhale insulin and other medicines to eliminate injections and vaccinations for diabetes and people with tuberculosis, and then on to develop methods to inhale nutritional foods to promote health and wellness for people with food addictions. He is Professor of the Practice of Idea Translation in the engineering school at Harvard University and founder of Le Laboratoire, a cultural center in Paris and Cambridge, where artists and designers perform experiments at the frontiers of science. His website says that he "works with contemporary artists, designers, chefs, perfumers, and other creators to pioneer research around ambiguous questions in human health, society, and the environment.

Helping him demonstrate and explain the science of scent was Richard L. Doty, Ph.D., founder and director of the University of Pennsylvania's Smell and Taste Center, and a professor in the department of otorhinolaryngology: head and neck surgery. Doty, who 30 years ago developed the gold standard for smell identification, the University of Pennsylvania Smell Identification Test (UPSIT), explained the relationship between molecules, mucus, proteins, and cilia (10-million tiny receptor hair-like cells), and provided an overview about the differences between senses of smell in humans and animals and why sense of smell tends to decline with age.

British filmmaker Maya Sanbar also was on hand to screen a short, animated film she created to showcase Edwards' vision of the synergy between digital scent, sound, and storytelling. "Sound affects your emotion when you're watching something, and different speakers and volume all factor in," she said. "When David told me about his work with scent, a light bulb came on, and I really wanted to experiment with the idea of how scent can also take you on its own adventure."

– Bill Glovin