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## Envisioning a Better Body

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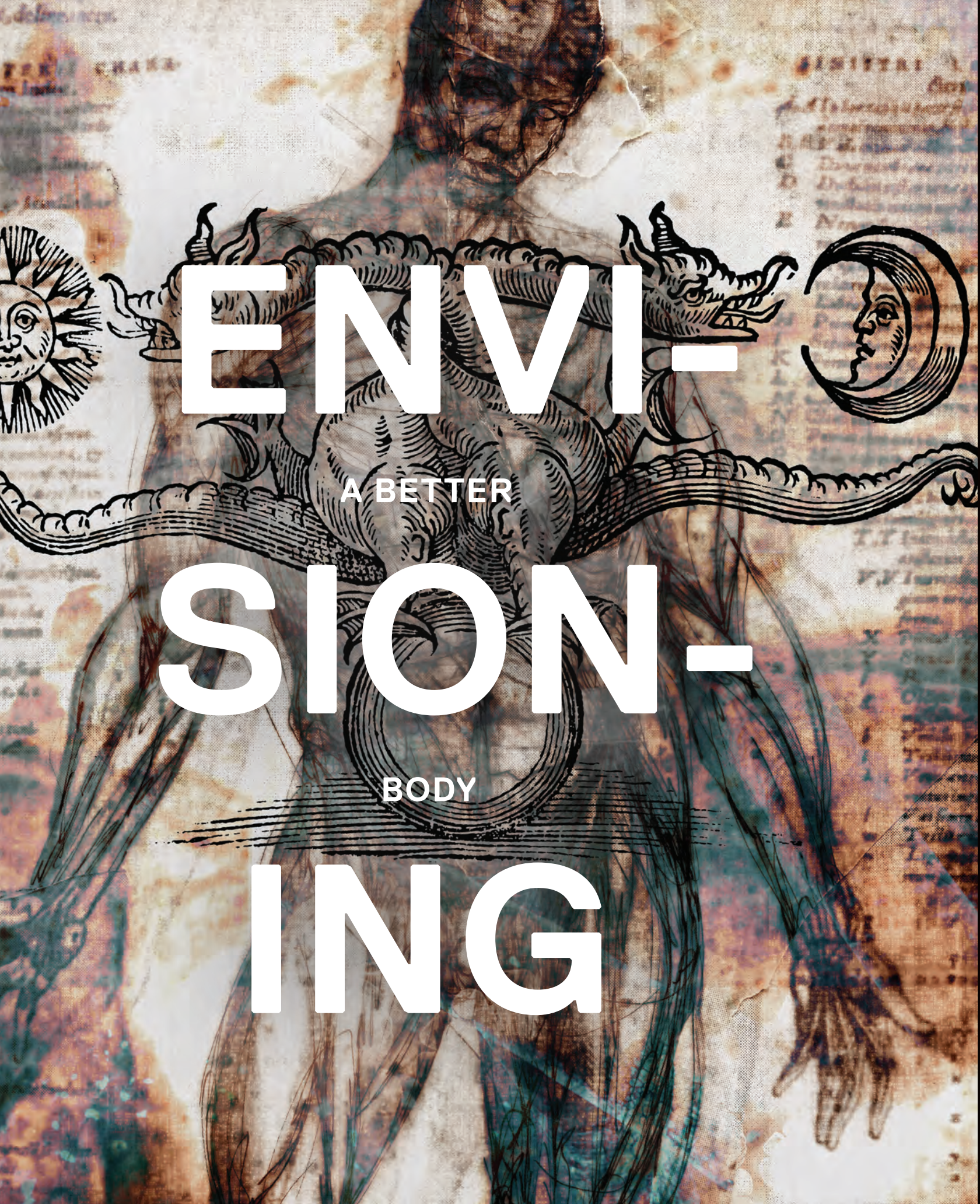
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Virgil Wong is building on a lifelong fascination with the human body to develop apps that help us manage our own health.

by **Samantha Dempsey** '13 IL

**A VISUAL TIME TRAVELER,** Virgil Wong '95 IL wants the rest of us to see into the future, too. Through a combination of art, medicine and technology, he helps people get a glimpse of their future selves and understand how their current behaviors shape that future. He then harnesses the power of visualization to motivate people to change.

As co-founder and CEO of Medical Avatar, a New York-based company that develops, sells and licenses mobile, web and wearable technologies, Wong creates personalized digital tools and experiences that help people manage their own health. The apps enable individuals to do everything from visualize medical histories to track symptoms, envision possible outcomes and facilitate better communication between clinicians and patients. *LoseIt! Premium*, a weight loss program distributed through Medical Avatar, is now the top-grossing health and fitness app in the iTunes Store.

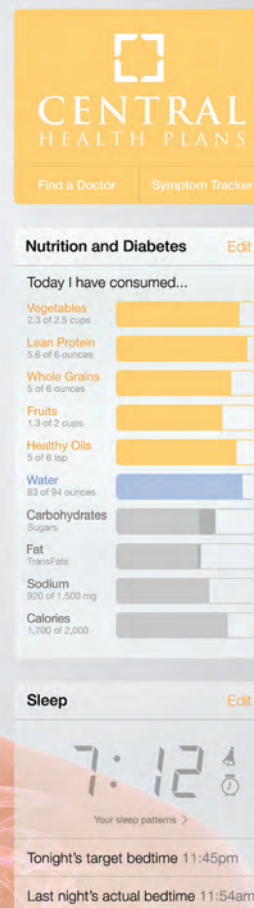
Although Wong's degree from RISD is in Illustration—not ID, a major more typically associated with medical device design—it makes sense when you realize that his work with information visualization stems from his understanding of medical data as a form of portraiture. Even as a child, Wong says he would tear apart and piece his medical records

back together as collages in the process of trying to understand the slices of data as representations of himself.

At RISD a growing passion for combining medicine and art began to evolve as Wong sought out ways to explore the gray area between the two disciplines. Immersing himself in the Nature Lab when he wasn't in classes, he also underwent what he calls the "David Macaulay Experience," citing Macaulay's course *Explain It* as "the conceptual foundation for my 20 years of work in health visualization and information design."

And yet for Wong the biggest game-changer came not in a RISD studio but in Rome—where he participated in the European Honors Program. While most EHP students spend their time drawing the Colosseum and painting the Pantheon, Wong found himself drawing the figurative works that populate the vast cityscapes. Even then, he knew that he wanted to go further. "I wanted to know the human body from the inside out," he says—"to know what's going on inside and see how we're all put together."

This desire led Wong to create his own independent study program at the University of Rome Medical School. One minute he would be out drawing from life on the dusty Roman streets and the next he would be in a freezer surrounded by dead



bodies. Though he had only expected to *draw* cadavers during the course, his horizons quickly expanded when a professor replaced the pencil he was holding with a scalpel saying, “Yes, draw—but you must cut, too.”

This graphic introduction to the practice of medicine immediately underscored one of the most pernicious problems in the field today. Every hospital claims to put patients first, Wong explains, but the healthcare system actually revolves around a complex network of payers, providers and pharmaceutical companies. Patients are often literally and metaphorically cut into a collection of pieces for diagnosis and treatment rather than being approached holistically as human beings whose own actions impact outcomes. Once this became clear to him, Wong resolved to use art as a means to refocus attention on humanizing health care.

## EXPLORING BEHAVIOR

The underlying sense of humanity—seeing people as more than the sum of their biological parts—still guides Wong’s work today. After taking courses through the continuing education arm of Harvard Medical School over a decade ago, he’s now pursuing a PhD in Medical Cognition and Intelligent Technologies at Columbia University. At Columbia he’s researching the same issues of personal health and healthcare cost-reduction that he’s working to address through Medical Avatar.

In addition to inspiring people to take charge of their own health, Wong hopes his work will help improve the larger medical system in the US overall. In other words, he aims high, working to “motivate disease prevention, improve chronic disease management and optimize communication between patients and physicians.” With that in mind, he’s now diving even deeper into understanding how images can help people make changes, conducting research to better understand how processing visual information can affect behavior.

After conducting a pilot study in 2013, Wong is now involved in a larger effort to study the effects of visualization on smokers, who are presented with the same information in three different ways. One group is told about the effects verbally, one is told verbally and visually, with images that illustrate the effects, and the third group is told and shown the effects but also experiences them through embodied cognition—meaning “any kind of learning shaped by aspects of the body,” as Wong explains it.

For instance, as a smoker holds an iPad over her hand, she sees a live image as it begins to change, morphing into her own virtual hand showing the effects of smoking. Wrinkles form, tissue degenerates, nails turn yellow. And the impact of this type of visualization is clear: Smokers who learn through embodied cognition better retain information about the effects of smoking. Outside of the study, these same people are more likely to join smoking cessation programs after seeing a simulation of what it will do to their own hands.

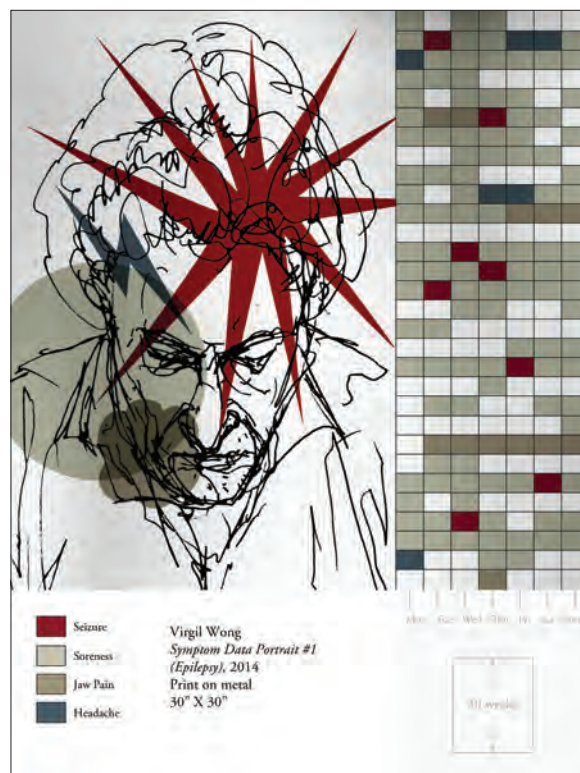
A smoking cessation app under development (*above*) lets people see the long-term effects of smoking and other behaviors on their bodies.

“Medicine helps us lead longer lives, but art is about why we live.”



Wong—shown above as he appears in his *Lifespan Avatar* app—created *Alchemy*, the artwork shown on the previous spread, from sketches he made as an EHP student in Rome and his woodcut of Elias Ashmole’s 17th-century piece

*Theatrum Chemicum Britannicum*. Printed on metal, the approximately 4 x 4’ digital composite is “a strange mixture of something evanescent—like our bodies” and more permanent—artwork that will outlive us all.



The *Medical Avatar* symptom tracker app allows patients to create 3D avatars of themselves and track how symptoms change over time.

## LEARNING FROM LIFE

While Wong is now fully committed to using visualization to improve health and the healthcare system, he once wavered about his decision to go to art school and pursue a creative life. When his mother was diagnosed with Non-Hodgkin’s Lymphoma in 2005, his family was overwhelmed with the complex mountain of information and necessary decisions that followed, especially as the cancer spread to other parts of her body.

As Wong explains in a TED talk from a few years ago, he was so discouraged and upset that he wondered out loud whether it might have been better if he’d gone to medical school and become a doctor instead so that he could help more directly. But his mother had no doubts. “Medicine helps us lead longer lives,” she told him, “but art is about why we live. Always be as proud of being an artist as you would be of being a doctor.”

Now that Wong’s mother survived surgery, chemotherapy and biological therapy and has been cancer-free for seven years, she has been learning calligraphy, traveling in China with an art class and painting watercolors. Her new lease on life is contagious, inspiring him to continue experimenting with fresh approaches to health care. In bridging the gap between artists and clinicians, Wong continues to help others connect these practices. Whether he’s helping patients see how their choices today will change their lives tomorrow or helping doctors see how patterns of symptoms paint a larger picture of a patient’s life, he continues to bring the “how we live” one step closer to the “why we live.” ■