

Chronic Diseases Targeted with New AI Platform

BY JENNIFER KASTNER

SEPTEMBER 12, 2023



CIPRA.ai develops precise and personalized chronic condition treatment plans for patients by using AI to decipher data from wearable devices. Courtesy: CIPRA.ai

San Diego-based AI biotech company [CIPRA.ai](https://www.cipra.ai) is harnessing the power of wearable devices like smartwatches and fitness trackers to generate precise, individualized recommendations for patients to help manage chronic conditions such as hypertension and diabetes. The mobile app technology was launched by Dr. Sujit Dey, PhD, a professor in the Department of Electrical and Computer Engineering and the director of the Center for Wireless Communications at UC San Diego.

“AI-based health coaching can be more scalable and cost-effective,” Dr. Dey said. “Using individual models, we’re able to precisely pinpoint what the problem is.”

Personalized Approach

The premise behind it all is that the treatment of chronic conditions requires personalized approaches — instead of the current “one size fits all” approach. Using various types of artificial intelligence techniques, the app collects different modes of data from your wearable devices and health monitors then channels that data into machine learning algorithms. It enables the system to develop a deep understanding of the patient’s symptoms and narrow down the exact cause of their condition. Based on that information, the system generates frequently hyper-personalized, tailored interventions.



Sujit Dey, PhD
Founder & CEO
CIPRA.ai

“We are collecting – in real-life – data from the patients from their monitors, like blood pressure or glucose monitors — to give the numbers for the chronic condition. Then, we are requesting that the patient wear a wearable device. Many of the patients already have their own wearables and we can support any wearable device. We also have an app that the patient downloads and occasionally answers prompted questions, from time to time.

“Using that data, we’re creating an individualized model of each patient and we call that model the digital

health twin of the patient,” he explained. “It essentially informs the system of the relationship between the patient’s behavior, lifestyle choices and the chronic disease. With that, they can make a precise diagnosis of what the main cause of the disease is. After identifying the main cause with the precise diagnosis, we’re able to come up with a precise pathway for the patient and explain to them – using AI – how we got to the diagnosis and what the impact will be if they follow the recommendations...Every week we are interacting with the patient as the model of the patient continues to grow and evolve.”

He said patients are giving positive feedback – the interactions aren't overwhelming, and the changes aren't extreme. "We're not upending their lives," he added.

Staggering Statistics

CIPRA.ai believes that chronic care needs an urgent fix, and generic care leads to largely uncontrolled disease. According to the company, 120M people in the U.S. and 1.3B people globally have hypertension — with 80% of patients struggling to manage uncontrolled hypertension. A staggering 37M people across the U.S. and 537M globally are battling diabetes. The problems are only exacerbated by significant clinician burnout. CIPRA.ai explained that human health coaches simply aren't scalable. Despite emerging solutions like remote patient monitoring, the load put on clinicians drives them to capacity. "We're very conscious that the health system in the U.S. and around the world is not built for this kind of continuous interaction with patients – you can't suddenly put this burden on the health systems. We're minimizing the doctors and care teams' involvement to make the solution scalable," he shared.

The solution – said Dr. Dey – is this multimodal, multidimensional data fused, personalized AI-based model of care. By developing both individual models and population-level models, CIPRA's AI platform identifies the primary causes of each person's chronic disease to guide them toward actions that are most impactful for reversing the disease of that individual person. Based on clinical trials and pilots conducted with its health partners, Dr. Dey said the company has observed impressive results, including 90% sustained patient engagement while seeing a 3X reduction in chronic disease population and a 10x improvement in clinician workload.

Real-World Application

With initial funding from UC San Diego Health, CIPRA.ai has already been deployed as part of a pilot program with a select population of hypertensive patients at UC San Diego. It's also engaged in a pilot program with Neighborhood Healthcare patients. Before the end of the year, the company plans to deploy its app live for use on a commercial level. It's operating on a B2B2C model.

CIPRA.ai is initially targeting hypertension but will then incorporate care for diabetes, before eventually targeting other chronic conditions like cholesterol and obesity. Dr. Dey also has a long-term goal of helping to treat mental health conditions.

The AI platform was incubated at UC San Diego Population Health, so CIPRA.ai's technology licensing is through the university. The company has thus far generated about \$1 million in funding for initial research and clinical trials, but Dr. Dey is reaching out to individual investors and will soon venture into institutional funding. "Hopefully it'll be one of the success stories coming out of UC San Diego," he added.

CIPRA.ai

FOUNDED: 2022

CEO: Dr. Sujit Dey, PhD

HEADQUARTERS: San Diego

BUSINESS: biotech

FUNDING: \$1 million

WEBSITE: cipra.ai

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NOTABLE: CIPRA.ai was a winner in the Prime Health Innovation

Competition, recognized as one of the top health innovation challenges in the nation.