

SHAPING THE FUTURE OF MEDICINE THROUGH AI

Smart virtual assistants. Online chatbots. Map apps suggesting the quickest route to your destination. These tools are small examples of how artificial intelligence (AI) already makes your day-to-day a little bit easier — but AI can do so much more. At McWilliams School of Biomedical Informatics at UTHealth Houston, it's transforming data to power human health.

"AI is to medicine today what the X-ray was to medicine a century ago," Jiajie Zhang, Ph.D., dean, professor and The Glassell Family Foundation Distinguished Chair in Informatics Excellence at McWilliams School of Biomedical Informatics, said. "It can process massive amounts of data more quickly and accurately than humans, enabling doctors and clinicians to see and predict patterns — which were previously unidentifiable — that inform disease prevention and care."

McWilliams School of Biomedical Informatics is the largest biomedical informatics program in the nation, and the only free-standing school, with more than 400 students and 65 regular and 68 adjunct faculty. The school's research and education programs support innovation that can be scaled globally.

In 2023, the school achieved a funding milestone: From August to September 2023, faculty members were awarded 16 grants totaling more than \$31 million. All grants support medical AI innovations and advancements. More than half the grants focus on using AI to address challenges related to aging and Alzheimer's disease, the most common type of dementia which impacts thought, memory, and language.

"People are living longer than ever, which increases their chances of being diagnosed with Alzheimer's disease," Zhang said. "Today, it is difficult to diagnose and there's no cure. But with these grants, we can conduct critically important research that may provide clarity on how to better diagnose and treat the disease in the future."

For example, one grant explores the genetic root of this disease. It will fund a genetic mapping project to discover patterns that may help with earlier diagnosis and treatments. Another grant will examine clinical and medication data across multiple institutions to determine why some patients may or may not



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respond to certain Alzheimer's treatments in clinical trials. Understanding this information will help develop personalized precision medicine to slow progression and treat the disease more effectively.

"Through data, technology, and the power of AI, our research and discoveries are transformed into actionable information, tools, and resources that will eventually treat millions of patients at a time," Zhang said. "It's exciting to be a part of that transformation."

Photo: Courtesy of UTHealth Houston