Using AI to Connect Patients To CLINICAL TRIALS

Trend Watch: AI Advances: From Nutrition Advice to Digital Pathology

Ohio-based Deep Lens has developed an AI-enabled digital pathology platform that connects to trusted networks of pharma sponsors, researchers, and care teams, so patients can be matched with appropriate clinical trials early in their treatment journey. Deep Lens is an AI-driven digital pathology company focused on disease diagnosis confirmation and clinical trial recruitment.

Deep Lens' platform, called Viper, combines AI, deep learning, and computer vision to rapidly identify difficult tumor sub-types/stages in real-time with very high accuracy. It can also find and match information associated with trials through real-time diagnosis enhancing coordination among research teams, care teams, and patients.

The Viper collaborative platform has been used and refined over 10 years at more than 85 major institutions in nine countries. It is now available free-of-charge to pathologists around the world.

Last March, Deep Lens partnered with a top global CRO, Worldwide Clinical Trials (WCT), to accelerate confident diagnoses of cancer and streamline oncology trial recruitment, timelines, and workflows. Using Viper, WCT is working to find the most suitable patients for cancer trials at the time of their diagnoses. By working with Deep Lens on clinical trial recruitment, WCT can reach upstream from the oncologist to the pathologist, enabling identification of eligible patients at the time of their diagnosis — much sooner than current methods. Going straight to the source can fast-track trial enrollment and potentially shorten the duration of the trial.

"With the global reach and scientific and operations expertise of WCT, we believe we can streamline clinical trial recruitment," says Dave Billiter, co-founder and CEO, Deep Lens. "And, just as importantly, oncologists can inform patients and their caregivers about clinical research options."

Google's DeepMind Reports AI Tech Can Spot Acute Kidney Disease 48 HOURS BEFORE DOCTORS

DeepMind, part of Alphabet, has been working with the U.S. Department of Veterans Affairs to develop a way to predict acute kidney injuries before doctors can see them.

In a paper published in the journal Nature, DeepMind researchers said their algorithms correctly predicted 90% of acute kidney injuries that would end up requiring dialysis.

As Alphabet and its various units have stepped into the healthcare space in the past few years, much of the focus has been on using its technology to predict serious health outcomes before they happen.

The research on kidney injuries came from two separate joint studies with the VA and the Royal Free Hospital in London. DeepMind said it analyzed data stored electronically from more than 100 VA hospitals, reviewing information on hundreds of thousands of patients. Personal details such as names and social security numbers were stripped from the data.

In addition to predicting acute kidney disease two days early, the company is also researching how to deliver these alerts in emergency situations so doctors properly recognize and act on them.

DeepMind's breakthroughs might eventually augment the mobile app Streams, which is mostly used in the U.K. as a communications tool by doctors and nurses. It doesn't currently use AI, but DeepMind has long stressed its vision of someday building "an AI-powered assistant for nurses and doctors everywhere."

Ping An's AI-powered CDSS 'AskBob' BEING TRIALED IN SINGAPORE

Ping An Smart Healthcare, a subsidiary of the Ping An Group in China, has introduced AskBob, an artificial intelligence-based medical decision support tool, to Singapore through collaborations with SingHealth and the National University Health System (NUHS). Unlike other clinical decision support systems (CDSS), AskBob is a "knowledge + data" two-wheeled, drive intelligent CDSS based on millions of anonymous patient medical records, clinical guidelines, and a core medical knowledge graph covering tens of millions of medical data.

AskBob makes use of Ping An's leading medical knowledge graph and advanced natural language processing technologies (NLP) to perform more user-friendly, intuitive and precise online searches and literature analyses. AskBob can provide up-to-date literature analysis summaries and predict scientific research trends. It can also track the scholar team network in a certain research field to connect researchers around the world.

NHS Teams up With Amazon TO OFFER PATIENTS HEALTH ADVICE THROUGH ALEXA

Britain's NHS has teamed up with Amazon to bring its health information to Alexa. Users can ask Alexa health questions and Alexa will provide information drawn directly from the NHS website.

The deal marks the latest move by Amazon into healthcare following its purchase of online pharmacy PillPack last year, and a tie-up with Berkshire Hathaway and JPMorgan Chase & Co aimed at cutting health costs for their U.S. employees.

The U.S. company's algorithm uses information from the NHS website to provide answers to voice questions. British Health Secretary Matt Hancock said millions of people were already asking Alexa and other voice assistants about health matters, and he wanted to make sure they received the best advice.

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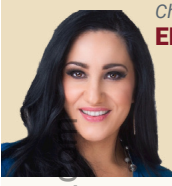

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- **Why you should care about digital therapeutics**

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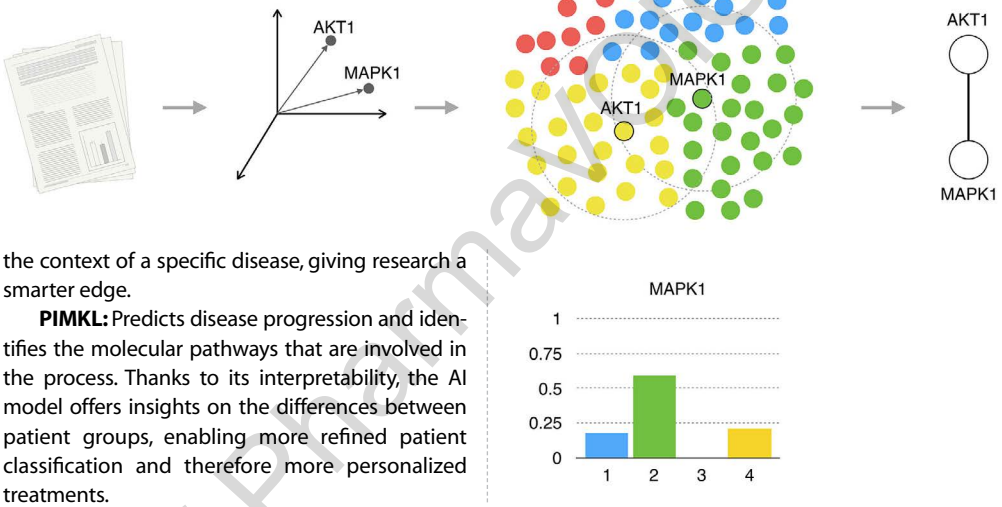
IBM Develops OPEN SOURCE AI TOOLS

Scientists from the Computational Systems Biology group at the IBM Research lab in Zurich, developed three machine learning tools to better understand the drivers and molecular mechanisms of complex diseases such as cancer. From detecting the differences in tumor composition occurring across various cancer types to predicting and explaining the efficacy of drugs, these tools have the potential to shed light on the dark corners of cancer and equip industry and academia with the necessary knowledge to develop new treatments and therapies. The three AI tools are open source and readily available on the IBM cloud to researchers and industry professionals to perform experiments. Making them publicly accessible helps maximize their impact within the biomedical research community.

PaccMann: A deep learning tool that can predict patient sensitivity to a drug with high accuracy. At an early stage, it can identify candidate compounds that will most likely prove effective at fighting the targeted disease, promising greater efficiency and lower cost in drug development.

INtERAcT (Pictured): A tool that extracts information on protein-protein interactions from scientific publications in an automated way. While comprehensive knowledge on protein interactions is fundamental to biomedical research, much is buried in unstructured texts, images and charts. INtERAcT mines unstructured text to quantify interactions between proteins and infer them in the context of a specific disease, giving research a smarter edge.



PIMKL: Predicts disease progression and identifies the molecular pathways that are involved in the process. Thanks to its interpretability, the AI model offers insights on the differences between patient groups, enabling more refined patient classification and therefore more personalized treatments.

Mayo Clinic to Collaborate with Viome on AI-Driven Personalized Nutritional Strategies TO HELP UNDERSTAND SLEEP AND OBESITY

Viome, a company transforming health through personalized nutrition based on individual biology, is collaborating with Mayo Clinic. The initial focus of the collaboration is two-fold: to better understand the role of nutrition in disease and to explore the potential of Viome's AI-driven personalized diets in helping manage sleep disorders such as sleep apnea and obesity.

The study will focus on measures of obesity (including body fat %), metabolism (HbA1c), and sleep. The teams will leverage Mayo Clinic's medical expertise and Viome's proprietary microbiome analysis platform.

Together, they will enable a better understanding of how nutrition affects chronic diseases, and explore the effectiveness of personalized nutrition as a strategy to help in treatment, and possibly even prevention, of these diseases.

This initiative will help leverage Mayo Clinic's research resources with Viome's AI technology and insights into the gut microbiome.

The study is led by Virend Somers, M.D., Ph.D., director of the Cardiovascular Facility and the Sleep Facility within Mayo Clinic's Center for Clinical and Translational Science.

By exploring the role of nutrition in chronic diseases, the collaboration will open up the possibility of developing personalized strategies and interventions to help in their management.

Mayo Clinic and Dr. Somers have a financial interest in the technology. Mayo Clinic will use any revenue it receives to support its not-for-profit mission in patient care, education, and research. PV

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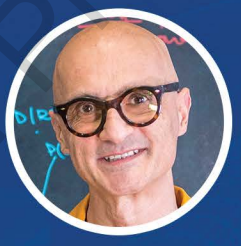

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