Ecosystems across the country working on gamechanger breakthroughs

The game-changing potential of AI in LSH to speed up diagnosis and drug discovery times, improve patient and clinical outcomes, and maximize cost savings have attracted interest from traditional stakeholders like drug developers and health providers, but also from specialized big tech and platform companies with the resources to make substantial investments in the sector.

Coronavirus COVID-19 under the microscope.
3D illustration.
Source: Shutterstock.

UNITED STATES

AI's potential in life sciences & health is quickly attracting big tech and platform companies

UNITED STATES

Trends, challenges and opportunities

There are three main trends at the interface of LSH and AI in the US: diagnostics & medical imaging, drug discovery and natural language processing. The challenges and opportunities of AI for healthcare are explored in a comprehensive study by the National Academy of Medicine.
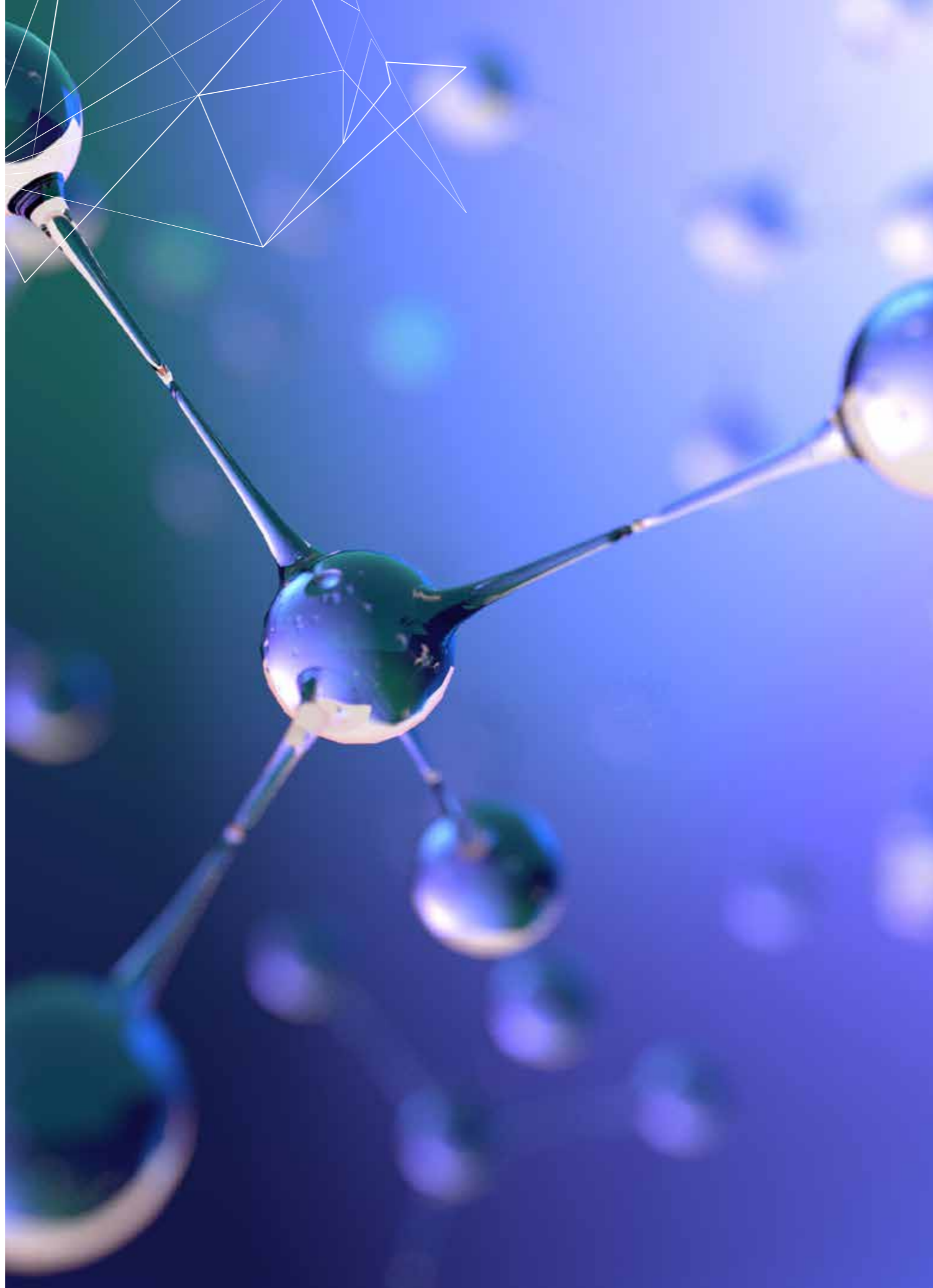
Medical Imaging and AI for diagnostics

AI strategies have been supporting the fight against COVID-19 since early 2020. To explore AI's potential to reduce preventable errors and oversights, the National Institutes of Health (NIH) launched the Medical Imaging and Data Resource Center, a collaboration between academia, professional societies, industry and government to develop diagnostic tools for early detection and personalized patient therapies.

In its battle against COVID-19, the NIH community has access to a unique tool: Biowulf, the world's most powerful supercomputer dedicated to biomedical research, which is helping researchers make sense of data in fields as diverse as genomic analysis, image processing and statistics, as well as 24 COVID-19 related studies.

Groundbreaking approach in drug discovery

Machine learning can significantly reduce the cost and time of new drug discovery and a team of MIT researchers have developed machine-learning models that can be trained to analyze molecular structures of compounds and correlate them with particular traits. It is the first time AI has discovered new antibiotics without the use of any human assumptions. This groundbreaking approach holds the potential for discovering other types of drugs, for instance cancer or neuro-degenerative disease treatments.

Natural language processing

Communication between humans and machines is facilitated through translating written and spoken words into a machine-readable format. The health care sector is rich in applicable data from different sources, user settings and legacy systems. Numerous companies are commercializing NLP for dictation, generation of medical codes, billing and patient care. Including Google, which is testing a Healthcare Language API.

Key ecosystems

The most important US ecosystems focused on AI and LSH can be found in the Bay Area; Southern California; the Greater Boston Area; the Washington DC, Maryland and Virginia Area Houston and New York. Each of them hosts a large concentration of R&D facilities, an educated workforce and top-tier research hospitals that are global leaders in their specialties. There are also several Dutch players active in this field in the US, including Philips, Quantib and Gilde Healthcare. Quantib recently received FDA clearance for the US market, which marked the first time a comprehensive AI prostate solution will be available to radiologists in the United States.

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