DATA SCIENCE IN HEALTHCARE

Data science is a multidisciplinary field that uses scientific methods, data mining techniques, machine-learning algorithms, and big data to extract knowledge and insights from a wide range of structured and unstructured data.

The healthcare industry produces massive amounts of valuable data on patient demographics, treatment plans, medical examination results, insurance, etc. Data science and big data analytics can provide practical insights and assist in the decision-making process for strategic healthcare decisions. It contributes to developing a comprehensive picture of patients, customers, and clinicians. Data-driven decision-making opens up new avenues for improving healthcare.

Importance of Data Science in the Healthcare Industry

According to one study, each human body generates 2 terabytes of data per day. This information includes brain activity, stress, sugar, heart rate, and many other things. To manage and maintain such massive amounts of data, we now have more advanced technologies, one of which is data science. It aids in tracking patients’ health by utilizing recorded data.

Thanks to the data science applications in healthcare, it is now possible to detect disease symptoms at an early stage. Doctors can also monitor patients’ conditions from remote locations thanks to the development of various ground breaking tools and technologies.

Previously, doctors and hospital administration could not handle a large number of patients at the same time. And because of a lack of proper treatment, the patient’s conditions deteriorated.

With data science applications in healthcare, the situation has changed. Data science and Machine Learning applications can notify doctors of patients’ health conditions via wearable devices. The hospital administration can dispatch junior doctors, assistants, or nursing staff to these patients’ homes.

Hospitals can also install various diagnostic equipment and devices for these patients. These data Science-based devices can collect data from patients such as heart rate, blood pressure, temperature, and so on. Upgrades and notifications in mobile applications provide doctors with real-time patient health data. They can then diagnose the conditions and help junior doctors or nurses administer specific treatments to patients at their homes. This is how data science can aid in patient care by utilizing technology.

Benefits of Data Science in the Healthcare Industry

For healthcare, data science is now an essential component and determinant that has changed the industry. Many facilities and processes have advanced as a result of data science, technological know-how tools, and techniques. It has accelerated treatment and diagnosis. As an outcome, the workflow of the healthcare device improves. The following are the benefits of data science in healthcare:

1. It aids in the proper handling of emergency situations.
2. It shortens the treatment time for patients.
3. It provides prompt and appropriate treatment.
4. It improves the efficiency of the healthcare workflow.

Application of Data Science in Healthcare Industries

Data science has numerous applications in the healthcare industry, revolutionizing the way healthcare providers operate, researchers conduct studies, and patients receive care. Here are some key applications of data science in healthcare:

1. Predictive Analytics: Data science techniques can be used to analyze large volumes of healthcare data, including patient records, demographics, and medical histories, to identify patterns and predict outcomes. This helps in predicting disease progression, identifying high-risk patients, and suggesting personalized treatment plans.
2. Disease Diagnosis and Prognosis: Data science algorithms can aid in the early detection and accurate diagnosis of diseases. By analyzing patient symptoms, medical images, and lab results, data-driven models can provide insights that assist healthcare professionals in making informed decisions about diagnosis and prognosis.
3. Personalized Medicine: Data science enables the development of personalized treatment plans based on individual patient characteristics, such as genetic makeup, medical history, lifestyle factors, and environmental influences. This approach can optimize treatment efficacy and minimize adverse effects.
4. Drug Discovery and Development: Data science techniques are employed in drug discovery and development processes. Machine learning algorithms can analyze vast amounts of data, including molecular structures, genetic data, and clinical trial results, to identify potential drug candidates and predict their efficacy.
5. Health Monitoring and Wearable Devices: Data science plays a crucial role in monitoring health and wellness through wearable devices such as fitness trackers, smartwatches, and remote patient monitoring systems. These devices collect and analyze data on heart rate, sleep patterns, physical activity, and other health indicators to provide real-time insights and early detection of abnormalities.

SOCIAL MEDIA ANALYTICS

Social media analytics has emerged as a potent tool within the arsenal of healthcare organizations, offering profound benefits for enhancing external communications and patient care. Through the systematic collection, analysis, and interpretation of data from various social media platforms, healthcare administrators can harness valuable insights, optimize resource allocation, and safeguard their reputation in the digital realm.

With the staggering number of 4.74 billion active social media users worldwide, healthcare organizations have recognized the vast potential these platforms offer. They are increasingly utilizing social media to champion health initiatives, connect with patients, and amplify critical causes and healthcare issues.

One pivotal advantage of social media analytics in healthcare lies in its ability to decode prevailing trends, sentiments, and behavioral patterns among patients and the general populace. Armed with this knowledge, healthcare professionals can adeptly tailor their strategies to elevate patient care and engagement.

The core utility of social media analytics is most apparent in its capacity to evaluate the efficacy of social media campaigns. Through the scrutiny of engagement metrics such as likes, shares, and comments, healthcare practitioners can pinpoint the content that resonates most profoundly with their target audience. This allows for a judicious allocation of resources, focusing efforts on creating and promoting content that maximizes impact. An illustrative instance is the World Health Organization's experience, where videos promoting physical activity garnered tens of thousands of views compared to those related to meditation, highlighting the value of discerning audience preferences.

Furthermore, social media analytics equips healthcare organizations with the ability to identify trending patient topics. By continuously monitoring and tracking the most prominent and pertinent subjects discussed by patients, organizations can proactively address these concerns through educational campaigns, informative content, and direct engagement. This proactive approach fosters trust, nurtures patient loyalty, and ensures that healthcare entities remain agile and responsive to evolving patient needs. In essence, when healthcare organizations listen attentively to their audience, patients reciprocate with active engagement and constructive interactions.

In conclusion, social media analytics in healthcare is a transformative tool that empowers organizations to refine their external communication strategies, cultivate patient-centric initiatives, combat misinformation, and safeguard their reputation. As the digital landscape continues to evolve, harnessing the insights derived from social media analytics will be indispensable for healthcare organizations seeking to provide optimal care and support to their patients.

Advantages and strategies of Social Media Analytics:

1. Timely Insights for Informed Decision-Making: Social media analytics provides real-time data, enabling healthcare administrators to make data-driven decisions promptly. This agility is crucial in responding to emerging health crises, public concerns, or sudden shifts in patient sentiment.
2. Precision Targeting: Healthcare organizations can harness the power of analytics to precisely target specific demographics and segments of the population. This targeted approach allows for the delivery of tailored health information, services, and campaigns to those who need them most.
3. Health Promotion and Education: Social media analytics can identify gaps in public knowledge and health literacy. Armed with this information, healthcare organizations can design educational content and awareness campaigns to address these gaps and improve health outcomes.
4. Mitigating Misinformation: The prevalence of health misinformation on social media platforms is a concern. Social media analytics enables healthcare organizations to track and counteract false information by sharing evidence-based content, thus promoting accurate health information dissemination.
5. Crisis Management: In times of crises, such as disease outbreaks or natural disasters, social media analytics can be indispensable. Healthcare organizations can monitor public sentiment, track rumors, and swiftly disseminate authoritative information to quell panic and ensure public safety.
6. Enhanced Patient Engagement: By understanding patient sentiments and preferences, healthcare organizations can create patient-centric engagement strategies. This may involve interactive Q&A sessions, live webinars, or virtual support groups to foster a sense of community and support among patients.
7. Measuring Impact: Social media analytics allows healthcare organizations to assess the impact of their initiatives and campaigns quantitatively. Tracking metrics like engagement rates, follower growth, and click-through rates enables continuous improvement and optimization of communication strategies.

In essence, social media analytics is not just a tool for healthcare organizations; it's a strategic imperative. Embracing data-driven decision-making and leveraging the power of social media can lead to improved patient care, more effective communication, and ultimately, better health outcomes for communities and individuals.

CASE STUDY

Human Longevity:

What does Human Longevity do?

Provider of genomics data and cell therapy-based diagnostics and therapeutic solutions. It offers an AI-interfaced platform providing a genomics-based, technology company with creating a database of the whole genome, phenotype, and clinical data. It provides genome sequencing, analysis, and collaboration services for cell therapies, and personalized vaccine development. It offers support services for preventive and personalized care including cancer analysis, integrated health analysis, newborn screening, and rare, undiagnosed diseases.

At Human Longevity, everything we do is in service of helping you live a healthier, longer life. We’ve designed a leading-edge precision health care program using today’s best technology to detect and help preempt cancer, cardiac, metabolic and neurodegenerative disease, and more. Our world-class clinicians and genomic scientists provide an exceptional level of insight and care to customize a program based on your data, so you can be radically proactive about your health and longevity.

About Human Longevity

Built by the pioneers of the human genome sequencing effort, Human Longevity is the global leader in advancing the Human Longevity Care movement, on a mission to discover and harness the technological and biological unlocks that amplify span of life, health, & high-performance.

Human Longevity, Inc. is committed to accelerating living to 100+ by revolutionizing the landscape of the current system of “sickcare” to true “healthcare”. By continually adding and analyzing our client’s health data, we are transforming treatment from a reactive practice to one that is proactive, preventative, and personalized.

Our History

In 2000, society oversaw Craig Venter, a brilliant scientist, sequence the first human genome. It was the start of the genomic revolution with the vision that one day healthcare will be able to have data-driven precision-based personalized medicine that can not only intervene but also eliminate cancers and major diseases.

In 2013, Human Longevity was founded with a half a billion dollars by Craig Venter, who currently sits on our Scientific Advisory Board. Starting as a research project, Human Longevity has now become a full-encompassing precision medical center under the direction of renowned entrepreneur Dr. Wei-Wu He. As one of the original scientists that worked on the human genome with Craig Venter, Dr. He wanted to bring to fruition the genomic revolution and the future of proactive healthcare.

With 2,000 members in the headquarter San Diego, Human Longevity has opened two more sites in San Francisco and Beijing. Seven other locations around the world have been mapped for the next five years.

100+ Longevity Membership Program

100+ is a proprietary program that combines advanced technologies with a dedicated medical team to help you achieve your healthiest and longest life. As a 100+ client, your annual precision health assessment is powerfully informed by your genomics, blood biomarkers and in-depth imaging. Your longevity clinicians, experts in interpreting large data sets, provide pre-symptomatic diagnosis, treatments based on your unique data, and continuously track your health to help preempt disease and aid in maximizing your performance.

100+ Total Health Assessment

Members receive 360-degree in-depth precision mapping of their complete self health, including whole genome sequencing, blood-based biomarkers, whole body imaging, bone & muscle strength analysis, nutrition & lifestyle habits, and more. From day-to-day primary care health assessment to the world’s most advanced longevity care mapping, 100+ members receive complete insight into their whole self health.

The Human Longevity Difference

Human Longevity is the global leader in advancing the Human Longevity Care movement, on a mission to discover and harness the technological and biological unlocks that amplify span of life, health, & high-performance.

We have built an unparalleled ecosystem that has helped over 5,000 clients around the globe to achieve their healthiest and longest life. There are no other places like this in the world. Our uniqueness is based on –

Deep roots in research and science

Integrated technology platform

Experience and proven knowledge

Deep Roots in Research and Science

HLI Ranked In Top 50 Biomedical Companies Globally in Nature Index

60 publication in peer reviewed journals including PNAS, AJHG, Nature Genetics, J. Clinical Oncology, Cell Metabolism, Science, Genes, etc.

Integrated Technology Platform

Supported by machine learning and the latest AI technologies, HLI has developed a technology platform that truly drives precision medicine.

Personalized data-driven analytics that enable risk reduction

AI-driven personalized risk detection and recommendations

Health insights derived from data: Longevity Model Matrix

Experience and Proven Knowledge from 5000+ clients

Based PNAS paper published in 2020, HLI’s early detection is changing clients’ lives by providing actionable diagnostics and recommendations.

Of over 5000 clients who have gone through HLI’s platform, 14.4% had new clinically significant findings. 40% had long-term value findings. Learn more about Our Science>

For individuals with life-altering findings, the projected additional life extension year is 8.51 years on average.

What sectors and market segments does Human Longevity operate in?

Human Longevity serves in the B2B space in the HealthTech, Life Sciences market segments.

ow much funding has Human Longevity raised till date?

Human Longevity has raised a total funding of $347M over 5 rounds.

It's first funding round was on Mar 04, 2014.

It's latest funding round was a Series B round on Apr 06, 2023 for $10.5M.

lockGet a deep dive into Human Longevity's funding rounds. Schedule a demo now!

Who are the investors in Human Longevity?

Human Longevity has 19 institutional investors including Celgene, Emerging Technology Partners and GE Ventures.

There is only 1 Angel Investor in Human Longevity.

Who are the CEO, Founders and Directors of Human Longevity?

J Craig Venter, Co-Founder & CEO, is a founder of 1 company. 1 email.

Peter Diamandis, Co-Founder & MD, is a founder of 9 companies and an Angel investor in 6 companies

Competitive landscape of Human Longevity

Human Longevity has 514 active competitors and it ranks 1st among them.

99 of its competitors are funded while 72 have exited.

Overall, Human Longevity and its competitors have raised over $4.22B in funding across 344 funding rounds involving 702 investors.

There are 7 public and 65 acquired companies in the entire competition set.

Who are the top competitors of Human Longevity?

PacBio - Menlo Park based, 2004 founded, Public company

Arrakis Therapeutics - Waltham based, 2015 founded, Series B company

DNAnexus - Mountain View based, 2009 founded, Series H company

CONCLUSION