

Case Study

Client: Datarwe

Project: Pivotal data assurance for healthcare dashboard

ABOUT US

Our services are purposefully designed to provide a cohesive experience for organisations embarking on digital transformation. Our business aptitude is your advisory, our technical skills are your project delivery and our training roots enables your team to build upon success

+61 1300 854 063

BACKGROUND

Datarwe is a data platform start-up that focuses on the ways in which AI and machine learning (ai-ml) can be applied to data and used to solve real-world problems. Currently, Datarwe's focus is on long-term data collection from individuals in Intensive Care Units (ICU). By doing so, it aims to reduce pressure on the health system through the development of precision medicine that allows for the adaptation of treatment for each patient based on more precise information about exactly who they are, rather than broad categorisation.

AN OPPORTUNITY

Datarwe recognised that there was an opportunity for a data-sharing platform that would reduce the growing pressure on clinicians and the health system.

There is unique, high-frequency information that is obtained in ICU, such as information around heart rate, blood pressure and oxygen levels that is not being collected in regular wards but would be useful for wider healthcare procedure. Datarwe recognised that this data could be retrospectively studied to determine the length or outcome of the patients' stays and be utilised in ai-ml models to assist hospitals on decision making process. For example, analysing respiratory data of previous patients to predict intubation requirements for future patients by helping healthcare staff recognise early warning signs of respiratory distress. However, this data is not stored for extended periods of time, limiting its ability to be utilised for long-term operational efficiency.

SOLUTION

To solve this issue, data can be collected from patients who had previously been admitted to the ICU and used to begin building predictive models that create patterns based on data from past patients from similar demographics, who presented similar qualities. This is the basis for precision medicine and allows for a more precise approach to patient treatment, as well as assisting with logistical factors for example, predicting bed availability based on factors such as projecting length of stay in ICU by analysing patient trajectories.

PARTNERSHIP & SECURITY

Datarwe's approach has been to build up a private-public partnership that allows them to apply their technological expertise to utilise rich data in health care more efficiently. This also allows Datarwe to ensure that the data is shareable and secure and can be overseen by hospitals and healthcare professionals who decide what data is shared and who gets access.

Datarwe helps to provide several layers of data protection across the whole data lifecycle, from secure data transport, applying data de-identification to protect privacy, strict control of data flows within the system, and managing strict governance protocols to ensure access to data is granted only to approved researchers.

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ASSURANCE WITH KJR

KJR has directed the industry in quality assurance for over 25 years. We have built a portfolio of projects across several industries and share a depth of experience in software testing, security, and governance. We recognise the potential of Artificial Intelligence and Machine Learning and see the specific challenges these technologies pose to traditional forms of quality assurance. We have harnessed our expertise to develop practical approaches to assuring compliant and successful deployments of AI solutions.

The relationship between KJR & Datarwe is about assurance. KJR's role is to ensure that the software that is being built is built correctly, is scalable, and secure. This includes ensuring that the data that is being collected is valid, and that only authorised people can access this data, as well as building up testing & assurance frameworks.

In addition to data security, data quality and error analysis are critical processes when building a machine learning model. Understanding precisely why the algorithm is working, or not working, is a key part of the assurance process. For example, machine learning algorithms can be trained to remove names and addresses from data, as part of the privacy compliance process. Algorithms trained on data from overseas may do a poor job of recognising Australian place names. Understanding exactly what kinds of errors are being made, and then re-training algorithms to correct these errors is part of KJR's approach to AI assurance.

DELIVERING END TO END MLOPS

KJR continues to partner with Datarwe on this project to provide a secure labelling platform for clinical information, enabling pre-trained models to be improved using local data. Delivering AI-enabled services in a clinical setting requires a rigorous approach to productionising machine-learning technology, drawing on techniques from AI Assurance and DevOps: ML-OPS if you will.

Data Quality & AI Assurance

- Data Cleansing and Validation.
- Data Labelling.
- Machine Learning Performance Evaluation & Error Detection.
- Data Augmentation & Bias Correction.
- Assurance of Transfer Learning.

Data Security & Governance

- Secure data ingestion.
- Authorisation & Access Control .
- Data De-identification.
- Access Monitoring & Governance.

Data Security & Governance

- Machine learning platform management.
- End-to-end deployment of machine learning systems.
- Monitoring machine learning systems in production.

For more information visit [the Datarwe website](https://www.datarwe.com.au)