

80% Accuracy in Cataract Detection

Elevating Ophthalmic Care with Acuvate's Advanced Analytics Solution



ABOUT THE CLIENT

Our esteemed client operates one of the busiest Ophthalmology units in the UK, with an impressive throughput of 500 eye examinations daily. As a leader in eye care, they are dedicated to providing exceptional services and ensuring the highest standards of patient care. Their team of highly skilled professionals enable them to address a wide range of ophthalmic conditions efficiently and effectively.

THE CHALLENGE

The Ophthalmology unit faced formidable challenges in cataract detection due to the labor-intensive nature of slit-lamp examinations. Each examination required up to 20 minutes, and the lack of a centralized diagnostic platform exacerbated patient backlogs, impacting service quality.



Time-Consuming Examinations

Manual examinations led to significant patient wait times, with each case demanding up to 20 minutes.



Interpretation Challenges

Clinicians encountered difficulties in interpreting case details accurately, leading to inconsistencies in diagnoses.



Service Efficiency

Prolonged wait times resulted in suboptimal healthcare delivery and patient satisfaction.

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SOLUTION

To address these challenges, Acuvate collaborated with the Ophthalmology unit to develop an Advanced Cataract Detection and Grading model. Leveraging advanced analytics and machine learning, this solution aimed to enhance diagnostic precision and efficiency.

Optimized Examination Time

Our solution streamlined the examination process, reducing case disposal time to under 5 minutes, and significantly improving operational efficiency.

High Diagnostic Accuracy

Achieving a commendable diagnostic accuracy rate, our solution ensured precise diagnoses, minimizing errors, and enhancing clinician confidence.



Sophisticated Deep Learning

Leveraging CRNN and Inception V3 techniques, we extracted critical eye parameters with precision, enabling accurate cataract detection and grading.

Technological Optimization

Employing advanced optimization techniques, such as ReLU and Softmax layers, we maximized performance, ensuring seamless integration and operation.

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TECHNOLOGIES USED



Vertex AI



Google Cloud Platform



TensorFlow



Cloud Run



Python



BigQuery

RESULTS



Operational Efficiency

Drastic reductions in examination time alleviated patient backlogs and enhanced service delivery, optimizing resource utilization and patient satisfaction.



Enhanced Diagnostic Confidence

With improved diagnostic accuracy, clinicians gained confidence in their assessments, leading to more effective treatment planning and improved patient outcomes.



Improved Patient Outcomes

With a remarkable 90% accuracy rate in cataract detection, the solution facilitated swifter interventions, leading to improved patient outcomes.

Conclusion

The deployment of our Advanced Cataract Detection and Grading model represents a significant advancement in modernizing cataract detection protocols. By integrating advanced analytics and machine learning, we have not only optimized operations but also elevated diagnostic accuracy, ultimately enhancing healthcare delivery. As we continue to prioritize innovation and patient-centric care, our solution remains pivotal in driving efficiency, accuracy, and overall service excellence within the Ophthalmology unit.

About Acuvate

With over 17+ years of experience in digital solutions, accelerating enterprise-wide digital transformation with our AI accelerators, we provide solutions and services that modernize, automate and support organizations. We help our customers transform their conventional processes to match the next-generation technological trend. We have a strong presence in the US, Europe, and the Middle East, where we serve multiple Fortune 500 companies. We specialize in New-age AI solutions, Migration & Modernization, and Digital Workplace Solutions. With our multi-skilled experts and packaged AI accelerators, we deliver unparalleled efficiencies and accelerate time-to-value for our customers