CASE STUDY:

Leveraging the Aidéo AI Factory approach to autonomously code surgical cases across multiple specialties

EXECUTIVE SUMMARY

Customer

A large billing, coding and transcription provider to the Ambulatory Surgical Center (ASC) market

Challenge

Medical coding for ASCs poses a great deal of complexity given the wide variety of surgical procedures across multiple specialities.

Solution

Gemini AutoCode

Results

Using Aidéo's AI factory approach, Aideo successfully trained and autonomously coded encounters across multiple specialties in a single AI model increasing coder productivity by better than 50%.

CHALLENGE

When approached by a large billing, coding and transcription provider to the Ambulatory Surgical Center (ASC) market that wanted to improve coder productivity, AidéoTechnologies had a series of choices to make.

The first was whether to wade into the complex world of ASCs and if so how to handle a business that codes for multiple medical specialties?

The client was using a combination of in-house and outsourced coders to work with their 1,000+ ASC customers. The in-house team was responsible for complex cases with more routine tasks like cataracts, for example, being outsourced.

ASCs have been growing in popularity in recent years as technological advancements and specialization drive more surgical procedures into the outpatient setting. A significant challenge with claims coding for the ASC space is the complexity for medical coders coming from a variety of surgeries performed. From knee surgery to hip replacement to colonoscopies and cataract surgeries, the variety and knowledgebase required to work efficiently can be daunting.

In attacking this challenge, Aidéo Chief Data Sciences Officer Jason Sroka, Ph.D., decided to employ Aidéos AI Factory approach to ASC coding. The AI Factory approach is a systematic and structured methodology for developing AI solutions leveraging the domain knowledge of Subject Matter Experts (SMEs) together with Deep Learning model training, and Dr. Sroka was optimistic the approach could handle the complexities of ASC coding.

"We were faced with a couple of major choices as we went down this path with our partner. Should we concentrate on a single specialty and silo our AI models was a consideration. But with long-term sustainability of our AI efforts in mind we decided to build a single model and train on the full spectrum of customer data," said Dr. Sroka

SOLUTION

To solution the challenge, Dr. Sroka outlined the key aspects of Aidéo's AI Factory approach. Leveraging Aideo's successful experience applying the factory approach to Radiology and ED, he aligned his team and resources to take on the ASC task.

Data management would be key to getting the project off on the right foot. Working with the client the Aideo team created an API connection and clearly defined data storage and handling processes to ensure a smooth ingestion of clinical notes into Aideo's large scale clinical language models.

With sufficient data in hand, next came the model development. While the AI Factory defines a Deep Learning architecture and methodology for leveraging SME knowledge to build a baseline interpretation capability, there is still significant experimentation to fine-tune hyperparameters and ensure, through extensive and rigorous testing and validation, that the most important domain knowledge is captured.

Using the principles of Agile Development to emphasize flexibility, adaptability, and continuous improvement allowed the project team to respond to their evolving understanding of the domain and incorporate feedback effectively.

Continuous integration and continuous deployment (CI/CD) pipelines ensured that the model was built, tested, and deployed in a consistent and efficient manner. This accelerated time to market and promoted a high level of collaboration between the customer coding SMEs and the Aidéo team.

"Partnering with our customer's coding subject matter experts and fostering that collaboration was a significant key to our success," said Dr. Sroka. "Truly understanding what was important to them and what the day-to-day challenges are for their coders was very beneficial in steering the direction of our model development."

RESULTS

With the goal of achieving coder productivity gains, Aidéo launched its ASC model after a development period with the customer. After the first six months the model was coding more than 40% of the client's processed claims, representing well over 1,000 unique ICD-10 and CPT codes.

Aidéo returned two types of claims from the Gemini AutoCode ASC model: Straight-to-claim 'Auto Codes' and pre-populated claim 'Predictions' to assist human coders.

The predicted coding returns allowed the client to code those claims in 50% the time it previously took their coding team. Interestingly, the Aidéo model was also returning predictions across all levels of complexity and multiple specialties maximizing the ROI for the client. As time goes on the Aidéo Factory model will continue to improve by learning from the human coding interventions on Predictions, converting Predictions volume into Auto Code volume and delivering increased time savings and ROI.

ABOUT AIDÉO TECHNOLGIES

Aidéo Technologies is a leading provider of medical coding productivity solutions to the revenue cycle management industry. Creating scalable and repeatable coding efficiency, Aidéo Technologies' Gemini Solution Suite empowers and compliments medical coders with workflow efficiencies, artificial intelligence, and supplemental coding services. The Gemini Coder Platform™, Gemini AutoCode™, and Gemini Coding Assist™ solutions are optimized to work together for maximum impact in creating efficiency and improving accuracy through workflow improvements and autonomous and predictive coding. Aidéo is headquartered in West Palm Beach, FL.