

Ensuring AI Due Diligence for a Private Equity (PE) Firm

A private equity (PE) firm engaged Clarkston after initiating an investment in a medical device company that creates wearable electrocardiogram (ECG) heart monitors and uses artificial intelligence (AI) to interpret heartbeat images 24/7. As part of the PE's AI due diligence processes, the client needed to ensure the integrity and quality of documented processes surrounding the software and AI product capabilities.

Having no in-house AI or software development expertise, the client relied on the Clarkston team to review and audit the medical device company's codebase.

The Clarkston team was tasked with looking for challenges in coding standards, potential vulnerabilities in library dependencies, and opportunities for scalability, as well as assessing the quality and thoroughness of the documentation of the various AI and software modules. Clarkston found several opportunities, as well as potential areas of concern, and reported the findings back to the PE and medical device company. In doing so, Clarkston accelerated the PE's understanding of the AI technology and prioritized several areas to be included in the company's roadmap for future development.

Life Sciences Case Study

PROJECT OVERVIEW

INDUSTRY:



Medical Device/
Private Equity

PRODUCTS AND SERVICES:



Commercial Data & Analytics,
AI & Software Audit

PRIMARY OBJECTIVES:

- Conduct a thorough review of the AI codebase, looking for violations of coding standards, vulnerable library dependencies, or any other areas of concern
- Complete a high-level evaluation of all software components tangential to the AI components (client billing portal, data extraction and preparation scripts, etc.), again looking for any major deviations from best practices and coding standards
- Evaluate all software components, including AI, for scalability as the company grows and continues to scale to their desired ambition
- Review any existing documentation surrounding both the AI and tangential software components to ensure the entire development process, structure, dependencies, etc. are recorded in a manner that would allow a new developer to seamlessly take over future maintenance and development
- Participate as AI SMEs during AI due diligence sessions with senior executives from the target company and the PE client, along with bankers, auditors, and other key players involved in the transaction

RESOLUTION:

- Conducted a thorough, line-by-line review of the AI scripts in Python, identifying issues such as insufficient documentation, outdated and unmaintained library dependencies, and inefficient imports on production code requiring additional memory use in an already extremely memory-intensive process
- Identified insufficient documentation for the company's Convolutional Neural Network, which lived at the heart of the AI process, as well as challenges in how it was designed and why, any iterative processes conducted, any logging of training and testing results, and more
- Provided the client with an extremely thorough framework for properly structured documentation addressing all steps of the AI development process
- Found inconsistent and outdated .NET frameworks used across different software modules, leading to security, maintenance, and device compatibility vulnerabilities

KEY BENEFITS:

- Awareness of major and minor flaws in the product in which the client is investing so that these issues may be addressed as soon as possible
- Recommended action steps and priority order for addressing all concerns, prioritizing the greatest vulnerabilities and challenges first
- Extremely thorough framework for documentation of the development process provided so that extensive knowledge of the product development processes, decision-making, testing, and more can be transferred to future developers and does not reside exclusively in the minds of one or two developers
- Confidence that, with all concerns resolved, the PE firm has a high-quality, sustainable, and scalable product ready to support future growth



KPIs

- A thorough final report displaying level of concern with each AI challenge identified
- Recommendations for addressing all concerns, particularly within the Convolutional Neural Network
- A professional, detailed documentation framework to ensure knowledge security and transfer