

HOW AI/ML CAN HELP RADIOLOGY DEPARTMENTS WITH WORKFLOW EFFICIENCY

Matthew DiDonato, Director of Product Management for Edison AI within GE Healthcare, discusses how Edison, GE Healthcare's secure intelligence platform, works with diverse data sources to improve departmental and hospital workflow, resulting in better patient experiences and outcomes. DiDonato manages a global team working to drive artificial intelligence within GE Healthcare. He is responsible for the development of Edison AI, which enables the creation of AI products across GE Healthcare's business segments. Prior to his current role, DiDonato worked closely with GE Healthcare's imaging businesses, building AI solutions embedded directly into devices. His background spans both technical data science and product development. Prior to his roles within GE Healthcare, he worked as the machine learning product manager at Arterys, developing AI products for cardiology and oncology. Additionally, DiDonato spent time at Intel and Mustard Seed Impact, a venture capital firm.

How does Edison integrate access to disparate protocols and data structures, creating a single view of the patient?

DiDonato: Hospitals generate an enormous amount of data. In fact, on average, a hospital generates 50 petabytes (50,000 terabytes) of data annually. In most cases, that data is generated and stored in a number of disparate systems, spanning patient health records, imaging, pathology, billing, operations, and so on. The result is numerous data silos. This in turn creates barriers to a consolidated view of the patient. And even if every one of these databases is technically reachable, clinicians shouldn't have to master multiple user interfaces and screens to access information — often, time-sensitive information.

We contend that every obstacle to a consolidated view of a patient creates the risk of blind spots, treatment delays, and mistakes in the care path. For physicians, these complexities lead to stress and burnout. Moreover, when data is fractured this way, it makes it much harder to develop cross-departmental systems.

The Edison platform provides common services and connections to break down these silos and provide easier access to this information. This simplified aggregation of data has significant impacts for both product development and deployment. In the case of developing AI products, this is especially relevant, as access to training data is a fundamental first step. On the deployment side, this ability enables smart applications and workflows, based on a full picture of a patient's clinical context.

How will patients experience these efficiencies?

DiDonato: The service-based design of the Edison platform allows GE Healthcare to reuse common components during product development and focus on delivering high-quality products with advanced features. A good example of this is AIRx, an automated workflow tool for magnetic resonance (MR) brain scanning that is powered by Edison. In brain MRIs, AIRx automates slice prescriptions and reduces redundant, manual steps by using AI algorithms built into the MRI technologist's existing workflow. The result is a more consistent and repeatable scan alignment to help physicians better monitor a patient across longitudinal studies. Notice I said "existing workflow." Just like the multi-screen problem, significant changes to a workflow generally have adoption issues, even for a powerful tool. This is why AIRx is embedded directly into an existing workflow.

How does Edison yield ROI?

DiDonato: ROI is achieved when there's a reduction of those obstacles I spoke about. This alone reduces mistakes, as well as unnecessary or repeat tests. Another path to ROI is by guarding the



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device investment. The Edison Healthlink, a locally deployed compute solution, provides a way of adding value to imaging devices through new software offerings. A great example of this new paradigm is Smart Subscription for GE CTs. It directly addresses one of the oldest challenges with buying imaging equipment: when you buy a new system, you're locked in to its capabilities even as new capabilities become available. Smart Subscription overcomes this challenge by making it possible to automatically keep your entire fleet of CT systems up to date. These new features ensure you get the greatest ROI from a device purchase.

What's next for Edison?

DiDonato: As we move forward, there are a number of exciting product offerings on the Edison platform in 2020. The AI team is expanding the tools and capabilities to incorporate more data types for product development. Additionally, we are excited about the Edison Developer Program, which will provide developers access to platform services. The result of the program provides GE customers access to third-party products and services while maintaining tight integrations into GE systems. We believe this will spur an ecosystem around Edison that will produce a slew of new and powerful applications, both clinical and operational.

GE Healthcare



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