



Achieving the benefits of AI with choice and control

A product guide to AI solutions for medical imaging from Merative

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SECTION 01

Introduction

Artificial Intelligence (AI) for Imaging is here. More and more applications are clearing regulatory hurdles and proving to be mature enough to support clinical use cases.

- **Health systems:** AI can support quality patient care by enabling physicians and specialists with broader clinical insights, improved confidence in diagnoses and more streamlined workflows.
- **Radiology practices:** AI can expand capacity to provide imaging services at the increasing pace of today's healthcare demands, while avoiding disruption to radiologists' current workflows.

But many organizations report challenges to achieving these benefits. Which applications address a real clinical or operational need? Are they readily consumed and understood by physicians, and do they produce measurable benefits? Will they work with existing imaging systems without disrupting workspaces or adding steps to current workflows? How burdensome will they be to IT and PACS admins—or even to Procurement—to manage and maintain?

Merge by Merative is your partner to help, offering a curated selection of AI applications that can be deployed in whatever manner your organization requires—on-premise, in the cloud, or some combination of both. Backed by a 30-year track record of success in imaging technologies, Merge has the proven technology and expertise to help

healthcare providers manage their AI journey successfully.

The record includes:

- Consistent top-three ranking in multiple KLAS categories. (Our customers like us!)
- Expertise in imaging technologies such as vendor neutral archives, viewers, PACS systems, and non-clinical AI. (We know about imaging workflows.)
- Selection of regulatory-cleared AI applications from a growing ecosystem of vendors. (We partner with the best.)
- Ongoing research and development in imaging technologies. (We believe in continuous innovation.)

Find the right imaging AI applications to meet your needs

Every healthcare organization has a unique situation and specific requirements for imaging technology solutions, which will shape how emerging technologies like AI will ultimately be adopted. To support clients wherever they are in their AI adoption journey, Merge offers choice (of deployment options, of applications, of workflow tools) and control (of how and when to deploy new tools, and synchronizing how they work together).

But finding the right imaging AI tools for your clinical teams is only a part of the equation in achieving AI benefits. Your IT teams must also deploy and manage these solutions.

Relying on an ecosystem of imaging technology partners and our own expertise, Merge offers a full range of deployment choices. Whether your organization is still working with on-premise solutions throughout, working on a cloud transition strategy or something in between, our team and expertise ensure that your imaging needs will be understood, that your strategic options are clearly laid out and that your short- and long-term deployment roadmap meets your business needs at every stage.

Merge works closely with our partners to ensure their AI tools can be readily integrated with Merge imaging solutions (including Merge Imaging Suite, Merge PACS and Merge Universal Viewer) through a rigorous testing process that addresses functionality, privacy and security – on top of verifying regulatory clearance. Each application is backed by data and evidence.

Orchestrating AI applications

For imaging organizations that want a strategic approach to AI deployment, Merge offers the AI orchestration module as part of Merge Imaging Suite. This module offers a platform approach that helps simplify the ongoing deployment, management and coordination of AI applications and their results across imaging workflows. It is cloud native, and designed to standardize the delivery of valuable AI insights to radiologists.

The AI orchestration module routes images to the correct AI algorithms, then sends processing statuses to the worklist in Merge Workflow Orchestrator (a component of Merge Imaging Suite). When AI results are finally ready for viewing, clinicians can see this clearly in the worklist, with urgent items highlighted if immediate attention is needed.

By using a single gateway into and out of the client's environment, the AI orchestration module eliminates the need for your IT teams to deploy and manage their AI applications; all of that has been handled by Merge, whether the client elects to use one or several of the applications.

About this eBook

This is your product guide to imaging AI applications from Merge and the ecosystem of AI partners who develop them. The next section includes the algorithms and applications. The following section presents information about the companies that developed them.

All descriptions and related materials have been provided by Merge's partners. The ecosystem is growing quickly and partnership statuses are dynamic. This has been noted. It is also noted where the joint offering—of Merge's solutions with the AI tools—are currently in development to be delivered commercially.

Read on to learn about the imaging AI applications that can help enhance your clinicians' effectiveness and confidence in their diagnoses, seamlessly within their current workflows.



SECTION 02

AI applications

Breast imaging

Lunit Insight MMG

Lunit

Accurately detects lesions suspicious of breast cancer in a mammogram, with improved diagnostic accuracy for dense and fatty breasts. Its AI score functions as supportive information, reducing radiologists' reading volume and complementing their interpretations.

[Read the clinical evidence ↗](#)

Koios DS**

Koios

A single-application, fully-integrated, computer-aided and machine learning-based lesion and nodule segmentation and diagnosis (decision support) combined with automated, exportable reports aligned to either ACR's BI-RADS and TI-RADS rating systems. Available both on-cart (GE) and across all major PACS workstation viewers to embed within current workflows. Clinically proven to simultaneously improve sensitivity and specificity for all experience levels of readers.

[Learn more ↗](#)

Therapixel MammoScreen

Therapixel

Helps radiologists interpret screening mammograms. Even experienced radiologists improve performance, feel more confident in their decisions and find more cancers. Its uniquely actionable MammoScreen Score™ allows them to confirm what they suspect and detect what they may have missed. Easily fits into existing infrastructure, providing a non-intrusive zero-click workflow.

[How it works ↗](#)



*Joint offering under development

**Contract pending

This information has been provided by Merge's partners.

SECTION 02

AI applications

Neurology

cMRI*

Combinostics

cMRI goes beyond MRI quantification to provide automated, objective quantification, lesion assessment and biomarker-based diagnostic support for dementia, Multiple Sclerosis, Traumatic Brain Injury and Epilepsy. cMRI ensures consistently high-quality reads, increases throughput by reducing the time spent per image read, and provides easy-to-read, clinically meaningful reports that can improve collaboration and communication with referring clinicians.

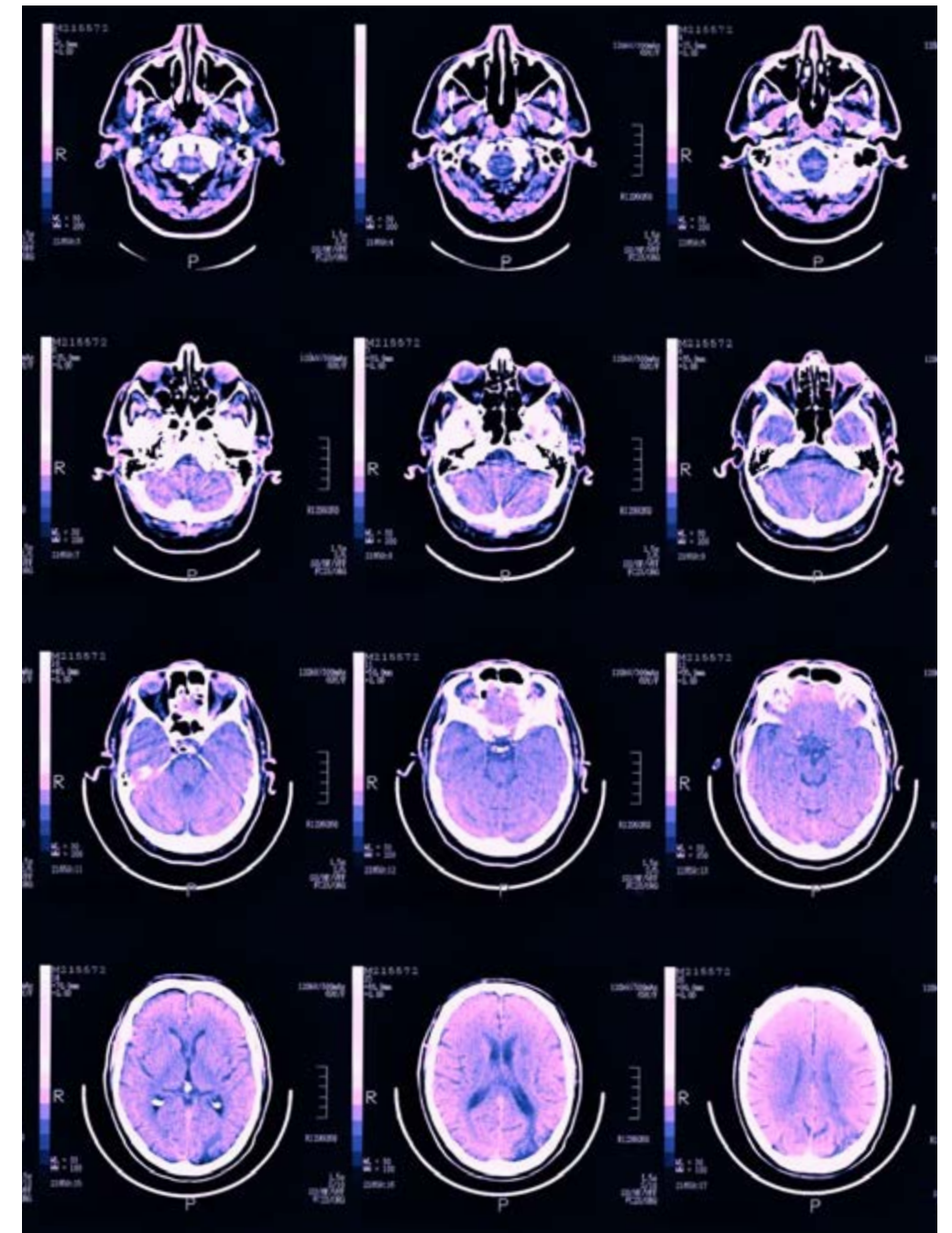
[Learn more ↗](#)

StrokeSENS™ LVO

by Circle Neurovascular Imaging

StrokeSENS™ LVO is a computer-aided triage and notification software intended to aid in the early identification of Large Vessel Occlusion (LVO) strokes by flagging suspicious cases within minutes of imaging. The software utilizes AI to automatically flag and prioritize cases of suspected anterior Large Vessel Occlusion (LVO), facilitating physician review of time sensitive cases that may require immediate endovascular treatment.

[Learn more ↗](#)



*Joint offering under development

**Contract pending



SECTION 02

AI applications

Thoracic

red dot[®] algorithm*

behold.ai

The red dot[®] algorithm from behold.ai is based on deep learning models to analyze and highlight abnormalities in chest x-ray images with speed and accuracy.

The regulatory cleared product is for the triage of Pneumothorax on chest x-ray images and will deliver a response to the clinician within 120 seconds.

[See how it works ↗](#)

Lunit INSIGHT CXR* Triage

Lunit

A radiological computer-assisted triage and notification software that analyzes adult chest X-ray images for the presence of pre-specified suspected critical findings (pleural effusion and/or pneumothorax). Helps reduce overall reading time with worklist prioritization.

[Read the clinical evidence ↗](#)

ClearRead[™] solutions

Riverain Technologies

ClearRead applications enable radiologists to see clearly and decide confidently by streamlining repetitive tasks which have high interoperator variability, and are challenging when unaided.

Both ClearRead CT And ClearRead Xray have been proven to decrease reading time and enhance nodule detection.

Any acquisition device. Any reading workflow.

[Learn more ↗](#)

VIDA Insights

VIDA

VIDA Insights is a comprehensive lung intelligence solution, empowering providers with AI-powered quantitative data and impactful visualizations. VIDA's biomarkers measure lung destruction, inflammation, function and much more to aid the detection, diagnosis, treatment and tracking of major lung diseases, including COPD, emphysema, asthma, ILD, lung cancer, COVID-19, and others.

[Read a full overview ↗](#)

[Watch the overview video ↗](#)

contextflow DETECT Lung CT**

contextflow

A computer-aided reading tool designed to help radiologists detect and measure pulmonary nodules. Feature include automatic nodule detection, location and measurements (max. long-axis diameter, short-axis diameter, average diameter and volume) for nodules ranging in size from 4mm to 30mm. DETECT Lung CT also provides relevant reference information, including links to various lung cancer screening guidelines.

(Regulatory clearance pending)

[Learn more about lung cancer malignancy scores ↗](#)

[More resources on DETECT Lung CT ↗](#)

*Joint offering under development

**Contract pending

This information has been provided by Merge's partners.



SECTION 02

AI applications

Musculoskeletal

CoLumbo*

A deep learning software, based on a Fully Convolutional Neural Networks (FFCN) architecture. With 3,500 fully annotated lumbar spine MRI studies behind it and 20,000 more studies in the annotation pipeline, the CoLumbo algorithm provides both qualitative and quantitative outputs with 90% accuracy. Ranked number one in every category at a MICCAI-organized machine learning challenge.

[Learn more about CoLumbo ↗](#)

Rayvolve*

AZmed

Rayvolve is a computer aided-diagnosis tool capable of detecting all types of fractures on X-Rays. It also sorts exams by priority order. The solution is 100% integrated into doctors' workflow and directly connected to PACS & RIS. It has been clinically tested with outstanding performances, including 67% false negatives avoided and 27% time saved. Rayvolve is now used in 550 healthcare centers in 25 countries on four continents.

[Learn more about Rayvolve ↗](#)

*Joint offering under development

**Contract pending

This information has been provided by Merge's partners.

SECTION 02

AI applications

Triage

Aidoc

Advanced healthcare-grade AI based decision support software. Aidoc's technology analyzes medical imaging to provide one of the most comprehensive solutions for flagging acute abnormalities across the body, helping radiologists prioritize life threatening cases and expedite patient care. Built on an exclusive aiOS™, it analyzes and aggregates medical data to enable care teams to operationalize the unexpected and work seamlessly with a continued focus on the patient.

[Learn more about Aidoc ↗](#)

StrokeSENS™ LVO

by Circle Neurovascular Imaging

StrokeSENS™ LVO is a computer-aided triage and notification software intended to aid in the early identification of Large Vessel Occlusion (LVO) strokes by flagging suspicious cases within minutes of imaging. The software utilizes AI to automatically flag and prioritize cases of suspected anterior Large Vessel Occlusion (LVO), facilitating physician review of time sensitive cases that may require immediate endovascular treatment.

[Learn more about StrokeSENS™ LVO ↗](#)





SECTION 03

Learn about the partners

Aidoc

Aidoc is a pioneering force in clinical AI, aiding and empowering healthcare teams to optimize patient treatment for improved economic value and clinical outcomes. Aidoc's clinically proven AI solutions eliminate silos, increase efficiencies and improve outcomes by delivering critical information when and where care teams need it, leading to immediate collective action. Aidoc AI is always on, running in the background to change the foreground.

Aidoc (Triage)

[Learn more about Aidoc ↗](#)

AZMed

AZmed was founded with the aim of improving patient care in emergency and radiology departments. To do so, the company develops solutions based on artificial intelligence, to optimize doctors' workflow and their working conditions. Its first solution Rayvolve detects automatically all types of fractures on X-Rays. It also sorts exams by priority order and it is integrated into the PACS allowing to save time and reduce diagnosis errors.

Rayvolve (Musculoskeletal)

[Learn more about AZMed ↗](#)

behold.ai

behold.ai is pioneering new diagnostic medicine and innovations in the treatment and prevention of diseases. The company develops AI tools to augment radiologists' expertise and help report accurate findings quickly.

red.dot algorithm (Thoracic)

[Learn more about behold.ai ↗](#)

Circle Neurovascular Imaging

Circle Neurovascular Imaging is built on the foundation of the industry-leading Circle Cardiovascular Imaging. Circle's hallmark neuro product, StrokeSENS, was envisioned by leading stroke care clinicians and industry experts to support the front-line in moving patients to the right treatments, faster, through innovative tools that optimize imaging. Circle is dedicated to providing health systems with innovative and clinically validated software solutions that leverage state-of-the-art design and technology to enhance acute stroke care.

StrokeSENS™ LVO

[Learn more about Circle Neurovascular Imaging ↗](#)

Combinostics

Combinostics' AI-powered products help clinicians make a difference in the lives of patients with neurological disorders. By quantifying brain images and integrating patient data from multiple sources with insights from previous patients, the company's unique software tools provide radiologists and clinicians the support they need for confident, evidence-based diagnostic and management decisions.

CNeuro MRI (Neurology)

[Learn more about Combinostics ↗](#)

CoLumbo by Smartsoft

CoLumbo is an AI-assistant software for reading and analysis of lumbar spine MR scans. It identifies and measures all major tissues and structures of the lumbar spine through automatic segmentation, and provides a detailed description of findings in an editable draft report. The software saves 25% on examination reading time, increases the accuracy of measurements by up to 15% and utilizes standardized reporting practices.

CoLumbo (Musculoskeletal)

[Learn more about CoLumbo ↗](#)

contextflow

Founded in 2016 as a spin-off of the Medical University of Vienna and European research project KHRESMOI, contextflow is a 45+ team member company, representing 20 countries, that develops deep learning-based medical device solutions for chest CT to help support the reading of complex lung disease and lung cancer cases.

(Regulatory clearance pending)

DETECT Lung CT (Thoracic)

[Learn more about contextflow ↗](#)

Koios Medical, Inc.

Koios Medical, Inc. is the global leader in AI-enabled software solutions for physicians diagnosing cancer using ultrasound imaging. The FDA-cleared and CE-marked software is comprised of ensembles of algorithms trained on hundreds of thousands of highly diverse ultrasound exams, sourced from more than 50 sites around the world. Koios DS™ software is decision support, or an instantaneous, accurate and consistent “second opinion,” proven to increase diagnostic accuracy and improve clinical confidence all within an optimized and streamlined workflow. Research proven to accurately detect and diagnose breast and thyroid cancers, resulting in fewer missed cancers, earlier detection and the avoidance of biopsies of benign tissue saving lives and elevating the patient experience.

Koios DS (Breast)

[Learn more about Koios ↗](#)





Lunit

Lunit is a medical AI software company devoted to providing AI solutions for cancer diagnostics and therapeutics. With its deep learning technology, Lunit makes data-driven medicine the new standard of care. Lunit AI solutions help discover cancer and predict cancer treatment response by finding the right diagnosis at the right costs and the right treatment for the right patients.

Lunit MMG (Breast imaging)

Lunit CXR Triage (Thoracic)

[Learn more about Lunit ↗](#)

Riverain Technologies

Riverain Technologies is on a mission to save lives through the early detection, diagnosis and management of lung diseases. The company's clinically proven AI software uses machine learning and advanced modeling to help improve outcomes for pulmonary patients.

ClearRead CT, ClearRead X-ray (Thoracic)

[Learn more about Riverain Technologies ↗](#)

Therapixel

Therapixel is specialized in the design and commercialization of AI-powered medical imaging software, with the goal of delivering pertinent information at the right time to healthcare professionals. Winner of the Digital Mammography DREAM Challenge in 2017, the global competition on breast cancer detection with AI, Therapixel has developed MammoScreen®, a software that helps with the interpretation of screening 2D and 3D mammograms.

MammoScreen (Breast)

[Learn more about Therapixel ↗](#)

VIDA

VIDA is a precision lung health company that modernizes lung and respiratory care for patients through AI-powered quantitative data and impactful visualization solutions.

VIDA Insights (Thoracic)

[Learn more about VIDA ↗](#)





SECTION 04

Learn more about Merative

About Merge

Merge medical imaging solutions, offered by Merative, combine intelligent, scalable imaging workflow tools with deep and broad expertise to help healthcare organizations improve their confidence in patient outcomes and optimize care delivery.

Learn more at merative.com/merge-imaging.

About Merative

Merative provides data, analytics, and software for healthcare and government social services. With focused innovation and deep expertise, Merative works with providers, employers, health plans, governments, and life sciences companies to drive real progress. Merative helps clients orient information and insights around the people they serve to improve decision-making and performance.

Learn more at merative.com.

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Merge imaging solutions are manufactured by Merge Healthcare Incorporated, an affiliate of Merative US, LP 900 Walnut Ridge Drive, Hartland, WI USA 53029

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