GE Healthcare at RSNA 2017
Artificial Intelligence
Press contact: Saige Smith
Saige.smith@ge.com
M: +1 262 289 7065

With the largest installed base globally, strong application leadership and more than 25 years of proven deep learning and artificial intelligence expertise, GE Healthcare is leveraging digital to realize clinical and operational outcomes across the healthcare industry. By combining software applications with best-in-class medical devices and services, GE Healthcare is committed to helping administrators and clinical staff deliver better patient outcomes more efficiently.

At the heart of GE Healthcare's approach is Applied intelligence – the analytics and artificial intelligence brain that powers GE Healthcare's leading applications, devices and services. In a healthcare delivery network, Applied Intelligence becomes the thread that flows between the machines and software to help unlock an organizations' full potential with insights.

With more than 200 imaging applications across GE Healthcare's imaging portfolio, the company's digital journey is well underway. GE Healthcare is showcasing its accelerated digital commitment as well as new AI-infused imaging applications at RSNA.

To address the need for increased productivity, we are demonstrating machine-learning enabled features such as **Imaging Related Clinical Context (IRCC)** and enhanced reading workflows, all of which were developed in partnership with University of Pittsburgh Medical Center (UPMC).[1]

IRCC delivers relevant patient clinical content in context, including EMR data such as surgical notes, pathology reports and clinical notes, directly to the radiologist and embedded in their existing workflow. With a deep learning algorithm that learns as radiologists provide input, physicians will be able to more quickly reach a confident diagnosis based on a more complete picture of the patient's full medical condition. The new IRCC algorithm, expected to be available in 2018, learns directly from radiologists through semantic feedback (the relevance of certain key words and sentence structure) how to best select and present relevant clinical data when contemplating a diagnosis.[2]

GE Healthcare's patented deep learning-based **Smart Reading Protocols (SRP)** aims to ensure each radiologist's protocols are always automatically hung in the same way. SRP increases radiologist productivity by learning each user's or group's reading tendencies to automate image setup including launching advanced visualization and other applications.

NVIDIA and GE Healthcare announced they will deepen their 10-year partnership to bring the most sophisticated artificial intelligence (AI) to GE Healthcare's 500,000 imaging devices globally and accelerate the speed at which healthcare data can be processed. NVIDIA, which has helped pioneer the spread of AI across a growing range of fields, including self-driving cars, robotics and video analytics, is working with GE Healthcare to spread its application in healthcare. GPU-accelerated deep learning solutions can be used to design more sophisticated neural networks for healthcare and medical applications—from real-time medical condition assessment to point-of-care

---

[1] *UPMC is a collaboration partner of GEHC and as a result, has a financial interest in the development and commercialization of certain GEHC next generation imaging products.*
[2] *Any descriptions of future functionality reflect current product direction, are for informational purposes only and do not constitute a commitment to provide specific functionality. Timing and availability are subject to change and applicable regulatory approvals.*

interventions to predictive analytics for clinical decision-making. For patients, the partnership aims to drive lower radiation doses, faster exam times and higher quality medical imaging.

The scope of the partnership includes the announcement of the new NVIDIA-powered Revolution Frontier CT, advancements to the Vivid E95 4D Ultrasound and development of GE Healthcare's Applied Intelligence analytics platform.

Read the full press release in GE Healthcare's RSNA press kit.

Partners HealthCare and GE Healthcare recently announced a 10-year collaboration to rapidly develop, validate and strategically integrate deep learning technology across the entire continuum of care. The collaboration will be executed through the newly formed Massachusetts General Hospital and Brigham and Women's Hospital Center for Clinical Data Science and will feature co-located, multidisciplinary teams with broad access to data, computational infrastructure and clinical expertise. The initial focus of the relationship will be on the development of applications aimed to improve clinician productivity and patient outcomes in diagnostic imaging. Over time, the groups will create new business models for applying AI to healthcare and develop products for additional medical specialties like molecular pathology, genomics and population health.[3]

The vision for the collaboration is to implement AI into every aspect of a patient journey – from admittance through discharge. Once the deep learning applications are developed and deployed, clinicians and patients will benefit from a variety of tools that span disease areas, diagnostic modalities and treatment strategies and have the potential to do everything from decrease unnecessary biopsies to streamline clinical workflows to increase the amount of time clinicians spend with patients versus performing administrative tasks. Additionally, the teams will co-develop an open platform on which Partners HealthCare, GE Healthcare and third-party developers can rapidly prototype, validate and share the applications with hospitals and clinics around the world.

Read the full press release here.

UC San Francisco's Center for Digital Health Innovation and GE Healthcare announced a partnership at last year's GE Digital Minds + Machines conference to develop a library of deep learning algorithms – complex problem-solving formulas – that aim to empower clinicians to make faster and more effective decisions about the diagnosis and management of patients with some of the most common and complex medical conditions.

The first wave of algorithms aims to expedite differential diagnosis in acute situations such as trauma, to speed treatment, improve survival and reduce complications. These algorithms can be deployed worldwide via the GE Health Cloud and smart GE imaging machines, sharing the research of healthcare leaders with clinicians around the world who have varied expertise.

The algorithms will be used to ensure providers around the world can access new knowledge and insights delivered through deep learning – a method by which machines can rapidly generate new levels of clinical and operational value from large imaging and textual data sets in ways that traditional machine learning methods cannot.

Read the full press release here.

---

[3] *Technology in development that represents ongoing research and development efforts. These technologies are not products and may never become products. Not for sale. Not cleared or approved by the U.S. FDA or any other global regulator for commercial availability.*

Boston Children's Hospital and GE Healthcare announced at last year's RSNA a collaboration to develop and commercialize digital solutions to advance the diagnosis and treatment of specific childhood diseases – starting with diseases that affect the brain. The first project seeks to improve diagnostic accuracy in pediatric brain scans by providing real-time contextual information at the time and place the radiologist needs it.

Every day, tens of thousands of children undergo medical imaging. At Boston Children's alone, nearly 1,000 imaging studies are performed each day. For general radiologists and pediatric imagers alike, the rapid changes in the body that occur as part of normal childhood development can pose challenges to accurately differentiate normal from abnormal. Keeping up with the ever-growing litany of specific diagnoses can frustrate even the most experienced of radiologists.

Leveraging the software expertise of GE Healthcare, the high-volume computing power of the GE Health Cloud and the clinical knowledge of radiologists at Boston Children's, the two organizations are working to develop a decision support platform that is intended to help distinguish the large variability in brain MRI scans. The system will be pre-loaded with normative reference scans from young children of different ages for doctors worldwide to use as a benchmark when reading scans of pediatric patients.

Read the full press release here.