Medical errors are the third-greatest cause of death in the U.S.¹ Among them, stroke patients are misdiagnosed 9 to 30 percent of the time in the ER.² It is projected that there will be 3.4 million stroke victims by 2030, which will cause loss or extreme hardships for patients and their families while generating $240 billion in total direct and indirect costs.³

Artificial Intelligence (AI) technology is becoming increasingly critical for the fast detection of life-threatening intracranial hemorrhages (ICH) by reading image scans. AI solutions are well-suited to help ER physicians, who are under extreme pressure to make quick and accurate decisions, while treating a large number of patients. In emergency CT scanning, combining the skill of radiologists with AI-enabled capabilities can quickly, accurately, and automatically detect ICH in patients and may improve outcomes while containing costs for healthcare providers.

MaxQ AI Automates and Accelerates Suspected Intracranial Hemorrhage (ICH) Detection with AI-Driven Imaging Insight

Optimized for Intel® architecture, MaxQ AI uses Accipio lx technology to deliver 3.7X faster performance
MaxQ AI ICH Detection Software

MaxQ AI is committed to harnessing the power of AI to raise the level of acute care in hospitals. Expert results from innovative technologies can potentially save lives, improve quality, and lower healthcare costs. MaxQ AI is at the forefront of transforming healthcare by empowering physicians to provide smarter care through intelligent imaging with AI-driven actionable insights. The company is developing a suite of bedside, clinical, and diagnostic decision-making tools for treatment of head trauma and stroke, where every minute counts.

The ACCIPPIO platform uses MaxQ AI's lx technology to help clinicians quickly and accurately assess whether a patient has an ICH. Based on deep learning technologies, the acute imaging AI engine leverages deep vision and cognitive analytics to assess a wide range of features. Using these methods, the Accipio platform is capable of combining the full richness of medical imaging along with other relevant patient data.

Accipio lx and Accipio Ax are two products within this platform that are trained to automatically analyze CT images for ICH. Accipio lx and Accipio Ax reduce the time needed to detect hemorrhages and may improve accuracy, enabling physicians to effectively prioritize patients when time is of the utmost importance.

Accipio Platform – AI With Answers

The Accipio platform receives and processes non-contrast head CT images from any DICOM source in the hospital environment. The Accipio processing engine utilizes machine vision algorithms, Convolutional Neural Networks, and Deep Neural Networks of differing architectures. The processing engine is highly parallelized to maximize CPU utilization and reduce processing time. It is optimized for performance on Intel® processors.
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Up to 3.7X Performance Increase on Intel® Architecture

The inference performance of Convolutional Neural Networks has been improved by using the Intel® Distribution of OpenVINO™ toolkit in the processing engine. These optimizations enabled the processing time to be improved by up to 3.7X on an Intel® Core™ i9 processor without impacting detection accuracy. The machine vision algorithms were also optimized for performance by using Intel® Threading Building Blocks (Intel® TBB) memory allocation methods to reduce context switching between threads. Further increase in performance was achieved by using OpenMP in place of boost thread pool.

Conclusion

The complete Accipio platform is designed to support the radiology, emergency room, and neuroradiology teams with a fully-automated solution. The Accipio platform uses MaxQ AI’s INSIGHT method, providing prioritization (Ix) and annotation preview (Ax) with further capabilities in development.

Running Accipio on Intel software and hardware platforms reduces processing time and contributes to a faster result for the medical team.

Learn More

For more information about the MaxQ AI’s Accipio platform, visit https://www.maxq.ai.

To learn more about the Intel® AI Builders program, visit https://builders.intel.com/ai.

MaxQ AI is a member of the Intel® AI Builders Program, an ecosystem of industry-leading independent software vendors (ISVs), system integrators (SIs), original equipment manufacturers (OEMs), and enterprise end users, which have a shared mission to accelerate the adoption of artificial intelligence across Intel® platforms.