FUSE-AI: ARTIFICIAL INTELLIGENCE FROM THE OPEN TELEKOM CLOUD

Flexible IT resources help radiologists make a better diagnosis

Every day, MRI (magnetic resonance imaging) scans create thousands of images per patient examination. Radiologists analyze each image personally in the critical hunt for tumors. But now artificial intelligence is helping doctors make their diagnosis: Fuse-AI, a start-up from the German city of Hamburg, has developed a system that can recognize and classify carcinomas on MRIs. The system doesn't just detect abnormalities on the image, it can also assess whether a tumor is benign or malignant. This helps radiologist recognize distinct alterations in tissue faster and more reliably. The northern German start-up uses IT resources from the Open Telekom Cloud to power the intelligent algorithm analyzing the MRI images.

AT A GLANCE

- Fuse-AI is a Hamburg-based start-up using artificial intelligence to improve cancer detection.
- The algorithm the firm has developed analyzes MRI scans, detects abnormalities such as carcinomas and makes an assessment whether they are benign or malignant.
- The start-up uses flexibly scalable, reliable and secure IT resources from the Open Telekom Cloud.

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THE REFERENCE IN DETAIL

THE CLIENT: FUSE-AI

The founders of the Hamburg-based start-up Fuse-AI were previously involved in software development, working on apps for the medical sector. "Over time it became quite clear to us that artificial intelligence would play an increasingly important role in medicine," says Maximilian Waschka, one of the Fuse-AI founders. "That's where were got the idea to help doctors make their diagnosis with machine learning utilizing neural networks."

In 2015, the four founders from Hamburg turned their idea into reality by developing the first concepts for an algorithm that could autonomously detect indications of cancer from MRI scans. They aimed to create artificial intelligence that would reliably find, mark and classify tumors.

THE CHALLENGE

An MRI scan creates more than 2,000 images per patient examination. A radiologist's job is to find any abnormalities in each image. While doing their analysis, they have to recognize and ignore so-called artifacts – deceptive changes in the images that can occur during the scan. At the same time, they have to detect real carcinomas and try to determine if a tumor is benign or malignant.

It's complex task – but one artificial intelligence can solve. This does, however, require massive processing power at irregular intervals. "Our needs fluctuate. We only need extremely high capacity during the image analysis," says Dirk Schäfer, an expert for machine learning and co-founder of Fuse-AI. "It would be very uneconomical to keep those kinds of IT resources constantly at the ready." So the young start-up looked for flexible cloud resources that could run the solution reliably and securely. "Another decisive advantage is the time we gain. The platform services from the Open Telekom Cloud, such as the Distributed Message Service (DMS), relieve us of many administrative tasks. That means our developers can concentrate instead on doing their core jobs," says Schäfer.

THE SOLUTION

The entrepreneurs from Hamburg applied for Deutsche Telekom's start-up program TechBoost. Young firms with software-based business models that qualify for the program receive €100,000 worth of processing capacity from the Open Telekom Cloud, Deutsche Telekom's public cloud offering. Start-ups participating in TechBoost also benefit from discounted wireless, fixed-line and Internet services, as well as sales and marketing support.

The Fuse-AI founders immediately qualified for TechBoost with their innovative solution, and today they can rely on the scalable IT resources from Deutsche Telekom's repeatedly certified and highly secure data centers located in the eastern German state of Saxony-Anhalt.

THE CUSTOMER BENEFIT

Fuse-AI will provide radiologists with diagnosis help available all the time from the cloud starting in 2018. "The Open Telekom Cloud is a wonderful instrument giving us both the flexibility and scalability necessary to realize this kind of solution," says Schäfer.

But that's just the beginning. Fuse-AI wants to help doctors with other image-based diagnoses. For example, the founders have developed together with dermatologists a dermatoscope that takes images of a patient's skin. These are, in turn, analyzed by Fuse-AI's artificial intelligence in the cloud just like the MRI scans. "With help from the Open Telekom Cloud we are making it easier to detect many widespread diseases more reliably and faster," says Sabrina Reimers-Kipping, a biochemist and Fuse-AI co-founder. "We're not just reducing the effort and costs involved, we're also increasing a patient's chance of recovery thanks to artificial intelligence."

FUSE-AI