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Singularity Systems

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The annual listing of 10 companies that are at the forefront of providing Machine Learning solutions and transforming businesses

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Extracting the Value Out of Trapped Data

With the advent of technology and modern applications, the amount of unstructured data in the form of text, video files, social media posts, and emails is snowballing. In fact, a report by IDC reveals that 80 percent of data will be unstructured by 2025. The proper analysis of unstructured data can open myriads of opportunities for businesses to grow. However, traditional automation models that can only process data organized in a pre-defined manner cannot help businesses tap valuable insights from these large datasets. That's why organizations today need intelligent solutions to extract information from various business documents, including images, .doc, and PDF. To this end, Singularity Systems offers an AI-powered platform—SinguAI—that enables businesses to automate workflow and design robust Natural Language and Computer Vision-based Machine Learning models.

"For using the platform businesses do not need to rely on data scientists or programmers. Through three simple steps, backbone model, transfer learning, and adaptation, the AI can be quickly trained," says Dr. Tianhao Wu, CTO, Singularity Systems. With more than 20 years of Machine Learning experience, this industry stalwart has architected machine learning platforms and successfully addressed over two hundred real-world AI use cases in the last two decades. Dr. Wu's expertise has played a vital role in the growth of Singularity Systems.

In an interview with CIO Applications, Dr. Wu, along with Michael Grant, VP, North American Sales at Singularity Systems, share insights on how they are making AI practical, scalable, and cost-effective for businesses to unlock insights from documents and make informed decisions.

Dr. Tianhao Wu, CTO

Could you give us an overview of Singularity Systems?

Singularity Systems was established in 2018 with a focus on intelligent document processing. We help businesses convert their raw data into actionable insights with our AI-powered platform SinguAI. Companies across various industries utilize our platform to make informed decisions in real-time. The platform unlocks the value of data trapped in images and documents and makes it available for businesses to use. We have shifted from robotic process automation (RPA) to intelligent process automation (IPA) as we realize RPA is not effective when it comes to learning and intelligence.

What are the challenges that you are currently observing in the marketplace, and how does your solution resolve those?

Businesses often struggle to extract valuable insights from a massive amount of unstructured data. Our platform makes unstructured data ready for systems or machines and automated processing. We are replacing the rule-based approach to extract information with machine learning and deep learning. This eliminates the need for human intervention to break down the data and make it ready for machines to interpret.

Moreover, organizations that have already applied AI technology usually struggle to scale it to massive use cases due to budget constraints. Most SMBs lack enough resources, time, and funds to build AI projects. Additionally, the data in the real world keeps changing. This raises the need to upgrade or build new models quickly and efficiently, which significantly increases the demand for data scientists and data analysts.

SinguAI enables companies to build machine learning models based on their specific business needs without data scientists or any coding requirement. Our real-time AI navigates users throughout the journey of labeling data, training and deploying models, and maintaining those during the entire cycle. Also, businesses do not need to spend significant time tagging documents, construing sentences, and analyzing semantics.

They can work and simultaneously teach AI how to process a particular type of document. Our AI learns, trains, and establishes its model and makes inferences concurrently in real-time. This way, business experts can establish models themselves through direct dialogue and interaction with AI. Because of this self-training and adapting nature that empowers constant learning, SinguAI drives higher accuracy.

Through three simple steps, backbone model, transfer learning, and adaptation, the AI can be quickly trained

Please tell our readers how SinguAI works.

SinguAI consists of three interoperable engines that work together to automate business processes and reduce costs. The first engine is SinguTXT that extracts information and insights from an unstructured and semi-structured text—documents, emails, and records. The second engine, SinguIMG, integrates Natural Language Processing (NLP) with computer vision to extract textual information from images, including scanned documents, ID cards, driver's licenses, and insurance cards. The third engine is SinguPREDICT—a predictive analysis engine—that utilizes neural networks within a deep learning approach to streamline the modeling, prediction, and implementation of different business functions, such as projecting sales, predicting claims, recommending products, detecting fraud, avoiding outages, and trading securities. All these engines are designed to be operated by business users directly without any need for programmers.

AutoML is also embedded in the platform to ensure supervised learning. Organizations can deploy real-time AI models within a few hours and easily validate their business use cases and make early adjustments to them. This way, our platform significantly reduces AI implementation time and meets the desired accuracy level by making the labeled data available.

Could you give us a customer success story where you helped a client overcome their challenges?

A global insurance company that processes thousands of claims per day manually wanted to enable self-service claims to transform their customers' experience. That's why they enabled customers to take pictures of various documents such as driver's licenses, vehicle registrations, VIN, and many others—along with images of the crash damage itself.

For this insurance company, our product first classifies all these images using a machine learning-based classification system and sends those to the right work queue for data extraction. After collecting all the different information, we transfer the data to their systems in a format that can be read by a machine. We process half a million images per day for this insurance company with 98 percent accuracy, enabling half a million transactions daily without any human intervention.

What does the future look like for Singularity Systems?

We are continually enhancing our AutoML capabilities to provide the regular business analysts level users the ability to be directly involved in the building, labeling, and training of AI models. This doesn't require any knowledge of a data science background since the AI guides a user throughout the process. This helps us make the data labeling process much more practical for enterprise use on the front end. On the other hand, the models continue to learn on the back end, whenever human and AI interaction happens. These collaborations continually evolve the models, enabling them to stay current with the data. However, human and AI interactions cannot occur at scale if they require a data science background. Therefore, we address that scale issue by leveraging AutoML to ensure an optimal user experience.

The challenge of extracting information from documents is undoubtedly not new. And people have been doing it for a couple of decades now. What's unique about our approach is that we're applying deep learning to that challenge for more consistent outcomes. CA