Banjo's ability to track events in real time gives clients competitive edge

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A dozen massive television screens hang inside Banjo's war room in a nondescript office park here beaming streams of social media data, 24-hour news networks and an animated, spinning globe highlighting hot spots of activity around the world.

From this nerve center, which evokes equal parts "Dr. Strangelove" and Dunder Mifflin from "The Office," a team of employees behind computer terminals are doing something extraordinary with the billions of public social media posts and other data points spewed onto the Internet each day: learning about events in real time before almost anyone else.

Banjo founder and Chief Executive Damien Patton calls the technology the crystal ball, and clients are paying tens of thousands of dollars a year for subscriptions. They include anyone whose competitive advantage is measured in seconds: financial service companies hoping to get an edge on trades, consumer brands like Bud Light looking for the latest meme about their beer and major media networks such as ABC and Fox anxious to break news.

The ubiquity of cellphone cameras has provided a window into all corners of the globe. But Banjo's powerful technology is able to filter through the noise, combining location, time and an uncanny ability to read images to determine whether something unusual is happening.

Staffers in Las Vegas will fact-check information before packaging it to

clients.

Banjo's algorithm alerted the company to the downing of a Malaysian jetliner moments after it hit the ground in Ukraine last year, detecting a picture of a plane crash posted without words on the Russian social network Vkontakte.

A photograph of bloodied passengers inside a train car posted on Twitter immediately tipped Banjo off to an Amtrak derailment in Philadelphia in May. Within five minutes, a local NBC affiliate and Banjo client posted video of the incident online.

And in January, Amazon shares fell after Banjo quickly learned through a posted picture of a fire at one of the tech giant's data centers in Virginia and informed a local news station.

"No fire engine was even there yet," said Patton, who boasts that his image-recognition software knows the difference between floods and lakes, smoke and clouds, and protests and ordinary crowds.

Launched in 2011, Banjo was originally designed as a consumer app.

But the company expanded its offering to a subscription model in 2013 after the Boston Marathon bombing. The attack opened Patton's eyes to the potential of Banjo's technology after seeing how quickly his team could pull together photos from the scene and determine what caused the carnage. Banjo Enterprise, the subscription part of the business, is the company's main focus today.

The bedrock of Banjo's data remains the app. That's because in lieu of registering their names, users are asked to share access to their social media accounts, be it Instagram, Twitter or China's Weibo. As a result, Banjo can peer into more than 1.2 billion public social media accounts.

In addition to the app, Banjo inked agreements for direct access to several social networks, although the company won't disclose which ones.

The combination of networks is necessary to collect enough data. It's also what prevents a social media company like Twitter from simply creating a rival to Banjo, Patton said.

Presented with all that information, Banjo's computers are now making a quadrillion computations every 10 seconds. Patton believes that they will be 10 times faster in the coming months.

Years of data mining has allowed the company to map the world into a grid made of 35 billion squares. When posts emerge from one of those squares that deviate from the norm, like a building fire or earthquake, it instantly lets employees know in the Las Vegas control room. The team there then determines which clients to alert, depending on the magnitude and location of the news.

It's a service that elicits awe and a touch of unease in a Big Brother sort of way. Banjo's omnipresent eye could one day save lives during natural disasters, prepare hospitals shortly after a major incident or aid insurance claims and police investigations, Patton said.

"What we have from a technology standpoint is like the founding of electricity," said Patton, 42, a Navy veteran prone to hard stares who lives up every bit to the adage about sailors and salty language. "It's that profound. We are not going to become the light bulb manufacturers ourselves, but we are going to empower people to build light bulbs on top of Banjo."

But that same technology, in the wrong hands, could weaken privacy, broaden state surveillance and snuff out a protest in places like China

before it gets too big.

Banjo's technology comes at a time of great advancement in image recognition, an area of research also known as convolutional neural networks. It's the science that allows Facebook to recognize faces or Google's computers to describe scenes in a photograph.

Give a computer enough images to absorb, and it can begin classifying the differences and similarities. Increased computational power the last few years has allowed researchers to innovate even faster.

What sets Banjo apart in this field, observers say, is that it has come up with a tangible business.

"I see most startups offering visual recognition as just a service," said Aditya Khosla, a researcher at MIT's Computer Science and Artificial Intelligence Lab. "They ask you to give them an image and they'll try and recognize it instead of saying what exactly you can do with it that is cool and gives you value. Banjo seems to me like it's going a step further in terms of creating value."

Big tech companies too are trying to figure out what to do with all their content and data. YouTube recently said it was rolling out a newswire service, a curated feed of the most newsworthy videos posted on its site.

Banjo's model has impressed investors like Japan's SoftBank, which provided $100 million in funding earlier this year; that brought its total funding to $121 million (Patton said Banjo isn't making a profit, choosing instead to reinvest most everything into scaling up).

Banjo maintains its headquarters in Redwood City, Calif., but Patton chose his current home of Las Vegas, a burgeoning tech community, for his control center because clients and investors often pass through.

Chief among Patton's concerns is reassuring users that Banjo isn't doing anything unsavory with its massive stores of data.

Tech companies such as Facebook and Uber have been criticized in the past for abusing user information, contributing toward a climate of mistrust in the digital age.

Experts say tech companies like Banjo that have the ability to locate millions of people in real time have to demonstrate that they are sensitive to privacy concerns, especially after National Security Agency whistle-blower Edward Snowden revealed just how vulnerable most people are, said Chip Pitts, a lecturer of law at Stanford Law School and former chief legal officer for Nokia.

"Technology is neutral but it can be used for evil," Pitts said. "You need to build upfront protections."

Patton says Banjo doesn't use any private data. If someone changes their settings on Instagram to private, for example, Banjo has written and patented code that erases all their previous posts.

"Any service that touches location has to think of their social compact with users and protect their privacy," said John Malloy, general partner and co-founder of BlueRun Ventures, Banjo's biggest investor shareholder. "Banjo built that into the system."

Patton said he has been approached by government agencies about his technology, but currently has no interest in working with them, largely because of public perception.

"I have to hold myself accountable and responsible," he said. "And you put yourself out there saying, 'This is how I personally believe in privacy.'"