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Deepgram builds a radical new approach to speech recognition

Challenge

Deepgram sought a law firm partner that could file patents quickly and build the company's IP portfolio during a critical fundraising round.

Outcome

Cognition IP drafted and filed expedited patent applications for Deepgram, without disrupting the company's research and development process. This gave Deepgram a competitive advantage with investors and helped direct future R&D efforts.

Introduction

Deepgram is a leading speech AI startup that uses end-to-end deep learning to deliver large-scale, reliable, and accurate speech recognition to enterprises. Unlike other speech recognition vendors, Deepgram offers its customers custom-trained speech models built to excel on each customer's unique voice data. By honing in and training on the terms, contexts, and acoustic environments critical to each business, Deepgram's AI gains expertise of the parts of the conversation that matter most. This new approach delivers unprecedented accuracy and scalability at speeds previously unattainable by traditional speech recognition methods.

Accuracy and scale are Deepgram's two major axes of differentiation, states Deepgram's CEO and Co-Founder, Dr. Scott Stephenson. *"The way we use deep learning gives us the flexibility to train models specific to our customers, which is not what you would be able to do elsewhere. First, we're the only ones that use a purely data-driven approach: we label data representative of the audio that a customer works with in production and retrain their model from end-to-end as one contiguous piece.*

This ensures accuracy is extraordinary from the outset and yields big economic gains. Second, this model is customized to you. It's going to beat any other system available."

Moreover, Deepgram is built to scale. *"In addition to accuracy, our customers gain reliability. Our customers process thousands of audio recordings every day, and they rely on a transcript coming back. With us, they don't have to worry about processing failing. They also know that our speed and cost are optimized for this kind of workflow because we run on GPUs which are an order of magnitude more efficient."*

Detecting deep dark matter leads to a new approach for signal processing

Dr. Stephenson's expertise in signal processing is derived from academia, having obtained his Ph.D. in Particle Physics. After graduating from the University of Michigan, Dr. Stephenson continued his Postdoc at UC Davis. His pioneering research involved building deep dark matter detectors in the U.S. The detectors were situated underground in abandoned gold mines and tunnels, away from the background cosmic radiation on the earth's surface.

Dr. Stephenson describes the complexity of his experimentation. *"While doing that, you have to push the frontier in a lot of different areas. Some of it is literally physical space. How do you build an experiment out of very low radioactivity, copper, plastics, LEDs and all of the electronics for it?*

Dr. Scott Stephenson
- Co-Founder & CEO, Deepgram

Cognition IP

How do you do data processing two miles underground? But the thing that led to Deepgram was the signal processing side of that. You have hundreds of streams of real-time waveforms flowing into the experiment. With so much data, you have to figure out if what's happening in those waveforms matters or not. This kind of thinking and brain exercise provided us with the skills and experience to start Deepgram."

Speech recognition is not a new field; it's a burgeoning industry crowded with giants like Amazon, IBM, and Google, as well as revolutionary young startups. Falling into this latter category, Deepgram's founders recognized early-on that intellectual property protection would be essential to the company's survival and prosperity. Says Dr. Stephenson, *"From a defensive perspective, IP is important to make sure that we can keep doing what we want to do. If we aren't putting stakes in the ground around IP, then other people will close us off from what we're already doing in the first place."* Moreover, Deepgram's novel approach and technology is the company's source of differentiation. *"In terms of what we are building, IP is not a small part of it. It's the core,"* explains Dr. Stephenson.

Deepgram's founders reached out to several law firms to discuss the company's IP, and they were unimpressed. Even the most reputable firms lacked subject matter experts, while others were too expensive or too slow. *"It was a nightmare,"* says Dr. Stephenson. Shortly thereafter, Deepgram discovered Cognition IP, a modern law firm with the DNA of a startup. Dr. Stephenson was impressed with the Cognition IP team and intrigued by the company's flat-fee pricing and technology-enabled efficiencies. Dr. Stephenson describes the partnership process as effortless. *"It was just so easy."*

Cognition IP identifies 11 novel inventions in development of Deepgram's IP portfolio

Deepgram and Cognition IP began their engagement in 2018. The Cognition IP team visited Deepgram's headquarters for a detailed invention disclosure meeting that lasted an entire afternoon. Cognition IP identified a total of 11 different inventions that were potentially unique and patentable. Following the meeting, Cognition IP performed a patent search on the 11 inventions and confirmed that they were novel. The Cognition IP team then drafted and filed a comprehensive provisional patent application covering all 11 inventions.

Amidst a critical stage of growth and fundraising, Deepgram was eager to obtain patents quickly. *"IP is part of a short-term confidence game that startups have to play with their investors, and patents are central to that,"* explains Dr. Stephenson. This need led Deepgram to work with Cognition IP to strategize a way to file additional patent applications that could be examined quickly by the patent office in order to have patents in hand in a short period of time. As a result of this strategy, Cognition IP filed 3 non-provisional applications on a subset of the inventions included in the original provisional application, with a request for expedited examination. Two of the patents were swiftly granted, so Cognition IP filed continuation applications for both in order to capitalize on the fast grants by gaining even more IP. *"Undoubtedly, this gave us a competitive advantage during fundraising. We were asked about the IP protection that we had, and we could point to our patents,"* says Dr. Stephenson.

Deepgram gains a competitive advantage during fundraising with expedited patent filings

Cognition IP was able to get Deepgram's patents granted quickly without requiring undue resources and time from the startup's team. The ease of partnership remains the biggest value-add to Deepgram's founder who says, *"Working with the Cognition IP team completely changed our mindset. Patents became super easy. Getting them granted became super easy, and that's because Cognition IP did all of the legwork for us. We were the supplier of the IP discussion, and the Cognition IP team figured out exactly what we were doing, wrote it down, and described it better than we ever could."* Dr. Stephenson jokes of the Cognition IP team, *"They might just be gods amongst men,"* but it is with sincerity that he states, *"Cognition IP is our top partner."*