WHITEPAPER

Deep Neural Networks Deliver Deeper Understanding

Improve Satisfaction and Results with More Accurate Speech Recognition

[24]7

Introduction

Consumers today have high service expectations, even when it comes to automated voice systems and self-service. People want to be able to resolve issues and take action by themselves—a trend that's been gaining traction in recent years across multiple channels. In fact, Forrester named the extension and improvement of customer self-service channels as the number one customer service trend for 2017, with sustaining automated conversations a close second[1].

These trends make it more important than ever to have an Interactive Voice Response (IVR) system that's able to recognize a wide range of intents with a high level of accuracy. [24]7 AIVA combines predictive, cross-channel natural language processing with Deep Neural Networks (DNN) modeling to make speech recognition vastly more accurate. Companies can save time and money by resolving customer issues faster, directing callers down the right path the first time, and reducing instances of "zeroing out" by requesting a live agent, while also improving overall customer satisfaction.

DEEP NEURAL NETWORKS (DNN) SPEECH RECOGNITION

Speech recognition technology inspired by the workings of the human brain which improves speech recognition rates, self-service rates, and customer satisfaction

[1]Forrester: 2017 Customer Service Trends: Operations Become Smarter and More Strategic

Predictive and Personal

When customers speak to a live agent, it's expensive—which is why for most companies the voice channel is a last resort for customer service. IVR solutions help customers resolve issues by enabling them to take action themselves, or directing them to the correct channel for help. But poor speech recognition leaves customers feeling frustrated, and can lead to increased instances of requesting a live agent. To change the outcomes, you need to change the approach.

As consumers, we've all experienced moments of frustration when an automated system fails to understand us. The natural reaction is to ask to be transferred to a representative, or to simply hang up. [24]7 AIVA's natural language technology enables an open, natural conversation with less frustration. Taking into account a customer's previous interactions via web, mobile, chat, and social gives a clearer understanding of their current situation, which helps create a personalized, simplified path to resolution.

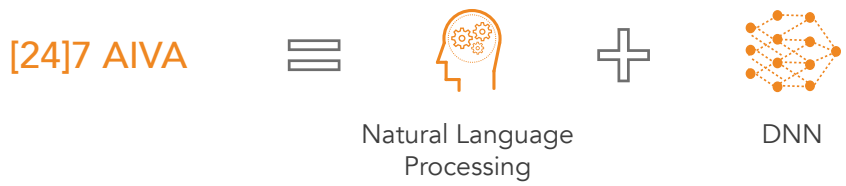
For example, if a banking customer calls because her credit card was declined, [24]7 AIVA knows that she recently checked her balance and can also see that her payment is past due. Drawing data from multiple sources in this way helps hone the IVR interaction, keeping customers satisfied while keeping customer service costs to a minimum.

NATURAL LANGUAGE: LET'S TALK

"What can I help you with today?" People need to be able to answer this question by speaking naturally. But "natural" speech can vary drastically depending on language, accent, dialect, and location—a noisy background makes it even harder to discern what someone is trying to say.

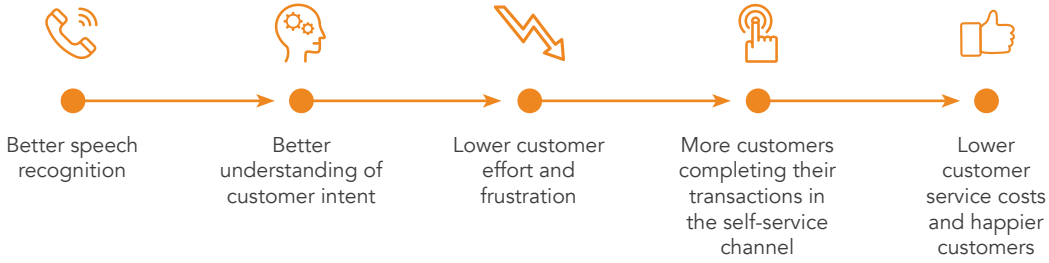
> Our customers call from noisy environments, and IVR systems have struggled to make out the customer intent over the cacophony of airports and other busy public spaces. This new platform will help us counter many of these issues and enable our customers to effortlessly complete their transactions in the IVR."
>
> *Gerard Insall, CIO of Avis Budget Group*

Deep Learning—the Next Level



[24]7 AIVA is the only IVR solution that uses Microsoft's DNN-based speech recognition technology to enhance accuracy. While most acoustic models depend on a single node to determine meaning, DNN uses multiple nodes together—the same way the human brain does. Using analyses from Bing search, Xbox, Cortana, and Windows Phone as well as other customer engagement channels, DNN draws on over 10 billion utterances for increased insight.

Why Does Speech Recognition Accuracy Matter?



Leveraging DNN yields at least 95% speech recognition accuracy. This enables companies to deliver effective, reliable self-service options for consumers, and also reduce costs by shortening the customer service journey in cases where self-service is not likely or optimal. In banking, for example, customers often prefer speaking to a live agent and more accurate IVR can help direct them down the correct path the first time, improving efficiency. Best of all, DNN doesn't slow down the IVR at all and it works for all languages—not just English.

USING DEEP NEURAL NETWORKS REDUCES:

- Errors due to incorrect grammar
- Dialect and accent errors
- Mismatches and no-matches
- Background noise hindrance
- Customer frustration and dissatisfaction
- Zeroing-out by requesting a live agent

DNN Success By the Numbers

Real [24]7 customers, real results:

15%
improvement for non-native US English speakers

10.6%
increase in speech performance

+10%
French & UK English recognition accuracy

+5%
Statistical Language Model (SLM) performance lift

+2-8%
US English recognition accuracy

4.8%
decrease in word error rate

Better Understanding, Better Results

For companies looking to direct customers towards self-service, natural language processing with deep neural network modeling makes a significant difference for the customer experience. More accurate speech recognition improves customer satisfaction, leading them to return to the self-service path for future needs. At the same time, it reduces call center costs and improves efficiency throughout the customer service journey.

Only [24]7 AIVA with natural language, deep neural networks, and web-aware IVR enables companies to engage customers with a simpler, smarter experience. And with the capacity to handle billions of calls a year with carrier-grade performance and service levels, it's the ideal solution for enterprises looking to reduce costs while improving customer satisfaction. Unify experiences across channels, accurately predict intent, and resolve issues faster. That's the future of customer service.

Let [24]7 help your organization achieve extraordinary results. Contact us today to get started.

DNN UNDERSTANDS NON-NATIVE ENGLISH SPEAKING PEOPLE

For US non-native speakers (~25% of US population)

Leverages non-native US English DNN model

Significant accuracy uplift -15%

Higher impact for enterprises with non-native speaking customers

Let [24]7 help your organization achieve extraordinary results. Contact us today.

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About [24]7

[24]7 is redefining customer acquisition and engagement by making consumer intent the cornerstone of digital transformation. With intent-driven engagement, companies anticipate and act on consumer intent across any channel, collapsing the time to deliver successful outcomes in the moments that matter most.

For more information visit: www.247-inc.com

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