

Speech
TECHNOLOGY PRESENTS:

Verifying Your Customers' Identity — How This Can Save You Money

Best Practices Series



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In today's mobile marketplace, companies are tasked with balancing customer demands for access to information at any time of the day with the need to be cost-efficient given their tight budgets and the need to keep customer information secure. In the following white paper, see how solutions from Nuance can help you meet these objectives and increase your customer satisfaction.

For additional information regarding verifying your customers identity – how this can save you money, make sure you tune into our roundtable discussion on March 25.

Let us know what you think about these series of programs by emailing me at lashawn@infotoday.com

Thank you for trusting *Speech Technology* magazine!

Sincerely,
La Shawn Fugate
Publisher, *Speech Technology* magazine

Optimizing call center security with voice biometrics



Nuance has been an active member of the voice biometrics research community for nearly 20 years. Our roots go back through Scansoft/Speechworks to Rutgers University research and through Nuance to SRI research; and that lengthy tradition continues today. Our track record of over 2 dozen issued patents in this domain and several more applications under review demonstrate the quality and innovation of this work.

A guiding principle of that research, both then and now, continues to be not only the search for ever more accurate algorithms, but also the quest to optimize the performance of voice biometrics in real world commercial applications. Although our research has resulted in a broad array of text dependent, text independent, and text similar voice biometrics offerings, our enduring emphasis lies in helping our customers achieve their business metrics for the convenience and security of automated identification and authentication systems.

So what are those business metrics and how does Nuance help customers achieve them? The primary business measure for most of our customers has been the automated authentication rate (AAR). This metric ultimately reflects the commercial usability of the ID&A solution. Users who are unable or unwilling to use the system overflow to manual authentication, by passing the system. The AAR will decline if the system is inconvenient (zero outs, time outs) or inaccurate (false rejects). Since most ROI calculations for ID&A systems are based on improved automation rates, both convenience and accuracy are critical.

The corresponding business measure is the security rate (SR). This metric reflects the ability of the system to correctly restrict imposter access. On the surface, an optimal SR might be considered in direct conflict with a high AAR, but a commercially reasonable balance is quite achievable. One of our

customers today has achieved an AAR over 95% with a corresponding SR of 99.6%; a significant improvement in both customer-perceived convenience and AAR with a simultaneous dramatic improvement in security, leading to significant fraud reduction.

Nuance products and services, delivering on those years of practically oriented research, enable these great results. Here are a few of the features and techniques that enable such a well optimized voice biometrics solution deployment.

Voiceprint enrollment optimization. Several voice biometric vendors have some form of consistency checking for their text dependent enrollments. Most rely on the fact that when a speaker says the same utterance three times, the length of the utterance (in seconds) will be essentially the same. This approach has merit, especially when the solution design has all users speaking the same passphrase (my voice is my password). On the other hand, when a more streamlined ID&A solution is designed to verify the user on a spoken identity claim (account number, telephone number, etc.) a more sophisticated enrollment validation is required. Nuance leverages speech recognition to validate that the correct and entire identity claim is spoken for each of the three enrollment utterances. This approach eliminates "weak" voiceprint enrollments due to incomplete or inaccurate utterances during the enrollment process. Additional features allow the channel type (wire line, mobile, blue tooth, etc) to be identified and logged. This information is extremely useful as contextual information in the authentication process.

Voiceprint matching optimization. The most common contributors to errors in the voiceprint matching process are incomplete or incorrect utterances in text dependent verification and inconsistent channel and environmental audio conditions during the verification. Nuance products leverage speech recognition to make sure that the speaker says

the requested information accurately and completely. Since this occurs in real time as a natural part of the user interaction, incomplete or inaccurate utterances can generate a re-prompt, facilitating a graceful recovery for true user calls (increasing the automation rate) and collecting more audio data for investigation and prosecution in the event of an imposter call. Further, Nuance products provide a series of contextual indicators (channel type, too loud, too soft, SNR, etc.) that allow Nuance customers to properly interpret the raw voiceprint matching score, enabling significantly more effective 2 factor authentication, further increasing the automation rate, user convenience, and the security of the system.

While these technical features of the Nuance products are fundamental to the performance of the ID&A solution, our best practices for the design, deployment and introduction of these solutions is equally significant. Defining the right target audience that will return the best ROI, designing a compelling "offer to enroll" for that audience that will yield the necessary opt-in rate, designing an enrollment process that is rich enough to yield a solid voiceprint yet fast and convenient enough to yield a high completion rate, and designing a market introduction process that supports both enrolled and not-yet enrolled users are crucial to commercial success. Nuance best practices address these vital elements of a commercial deployment, and have been developed in through the experience of deploying real world voice biometric solutions.

Nuance is proud of our research heritage in voice biometrics. We are even more proud of our continuing commitment to direct that research towards the deployment of commercially successful applications for our customers. ■

Contributed by Chuck Buffum, VP of Authentication Solutions, Nuance Communications, Inc.