



Guest Columnist JACK HERMANSEN

Name recognition technology and the fight against terrorism

Recently, there has been a great deal of focus on biometrics as the solution for identifying suspects on watch lists in the fight against terrorism. The promise is that if we can just do a better job of facial recognition, retinal scanning or palm-geometry discrimination, we will live in a safer world. But, this discussion is misleading. Not only is this branch of science in its infancy — and thus years away from the surety it hopes to one day provide — it is also subject to a fatal flaw: biometrics are only good the *second* time you meet someone.

Identity management for border security, as well as for any other kind of identity verification, really begins with a person's name. It is names that are gathered, researched and recorded on watchlists, and names that are offered on passports, visas, and other identity documents.

The sudden rush to biometric technology was fostered in large part because the computers doing these critical name recognition tasks are embarrassingly inept. But, rather than tackle the difficult job of improving this important border protection technology, some experts said, let's focus instead on developing biometric technology. Unfortunately, it will never be an either/or situation: name recognition and biometrics are complementary technologies that must work together for either to be effective.

People don't often think of names as compact databases of knowledge, but that's precisely what they are. In our multicultural society, understanding the components of a person's name can provide valuable information about the name's origins, its cultural variations, and the meanings of the elements of a name. Given new name recognition technology, it may now be possible to take advantage of insights never before available to improve homeland secu-

ANALYZE =>

Name Reference Library™

Name Analysis

Hakim, Hajj Abdul Rahman

Culture	Arabic	Explain
Gender	Male	Explain
Order	Correct	Explain
Particles	HAJJ (title) ABDUL (prefix)	
Countries	Bangladesh Indonesia Saudi Arabia Egypt Syria Pakistan Qatar	Explain

Variants [Explain](#)

HAKIM	HAJJ ABDUL RAHMAN
HAKIM	ABDULRAHMAN
HAKEM	RAHMAN
ALHAKIM	ABDULRHMAN
ELHAKIM	ABDERRAHMANE
ABDELHAKIM	ABDELRAHMAN
ALHAKEEM	ABDUL RAHMAN
HAKEM	ABDERRAHMAN
EL HAKIM	ABDURAHMAN

New software allows for accurate comparisons between multiple versions of the same name, as demonstrated in the list above of derivatives of the name Hakim

rity screening. This is clearly a breakthrough.

In fact, names are really the last data type to be mined for inherent information. To date, names have been treated as no more than character strings, when in fact they are full of information. Maria Luz Rodriguez v. de Luna, for example, is the widow of a Mr. Luna. Most people — and all systems — in the data world are simply unaware of this kind of potentially valuable information. Access to this vital layer of data awareness has never before been more necessary; nor has it ever been as readily available as it is today, a result of decades of research and development.

HOW NAME RECOGNITION TECHNOLOGY WORKS

New sophisticated multicultural name searching systems for use with the growing number of international watchlists can now provide a level of confidence that law enforcement and border control officers never had before. Instead of relying on older

computer methods based on culturally-blind "key-based" searches (originally called "Soundex"), new knowledge-based technology uses information about the specific origin of a name to select the set of operations that will perform the best match for names from that culture.

Of course, the ability to correlate information that might be related to an individual (such as addresses, phone numbers, etc.) has been around for decades. But this new name-based technology now dramatically extends the capabilities of ID management systems to identify and manage identities across cultures. Given the importance of security, compliance, and other initiatives now mandated to protect people and assets, this cross-cultural ID management is key.

People's names are typically the most immediate and important access to database files, but other corroborative identification elements are also necessary to certify an actual identification. Fully developed search systems use date of birth, addresses, and other information to develop reliable confidence in identification of an individual. The inability of these systems to properly associate names that appear in variant forms, however, has been a glaring defect in the process. Better technology to handle name variation across cultures is now addressing this problem.

DEALING WITH FALSE POSITIVES AND IDENTITY MANAGEMENT

Soundex — and the many key-based search systems derived from it — show up most prominently in false positives, where people are wrongly detained because their names purportedly appear on the federal government's "no fly" list. There are many variations of Soundex in use today, but these keys can most easily be understood as they were originally specified: the initial letter of the sur-

name followed by three digits corresponding to the six categories of consonants that followed in the name, with a zero padded on the end if there are not three qualifying consonants.

For example, the surname, Shaefer, gets keyed as S160. The "1" represents the "F", and the "6" representing the "R". (Vowels, H, W, Y, and double consonants are deleted.) By contrast, the name Schaefer is keyed as S216, since the "C" gets coded as a "2". These two names would never be seen together in a typical key-based search, since their codes are different. However, someone bearing the name Schaefer, would be stopped from boarding an airplane if the name Seigoporanovich was on the TSA watch list, because both names have the key S216.

While the technology is now finally available to ameliorate this circumstance, the integration of this solution into our frontline systems, unfortunately, is not moving as quickly as some had hoped.

THE FUTURE OF IDENTITY MANAGEMENT AT U.S. BORDERS

Federal officials are starting to realize now that the current systems at our borders don't work. The 9/11 Commission Report unambiguously confirms that name recognition technology is a key element in the Department of Homeland Security's mission to prevent further terrorist attacks. What's more, the Border Enhancement and Visa Reform Act of 2002 mandates that multicultural name recognition systems be used for all sensitive intelligence and border control applications.

By capturing the expertise that is available about names and their transformations into a knowledge-base, and by writing flexible rules that account for known linguistics insights, it is possible for a knowledge-based system to tell computers how to best examine names. Sophisticated technology for presenting this information to name search operators can now provide them with a decision-support capability that has never been available before. ■

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