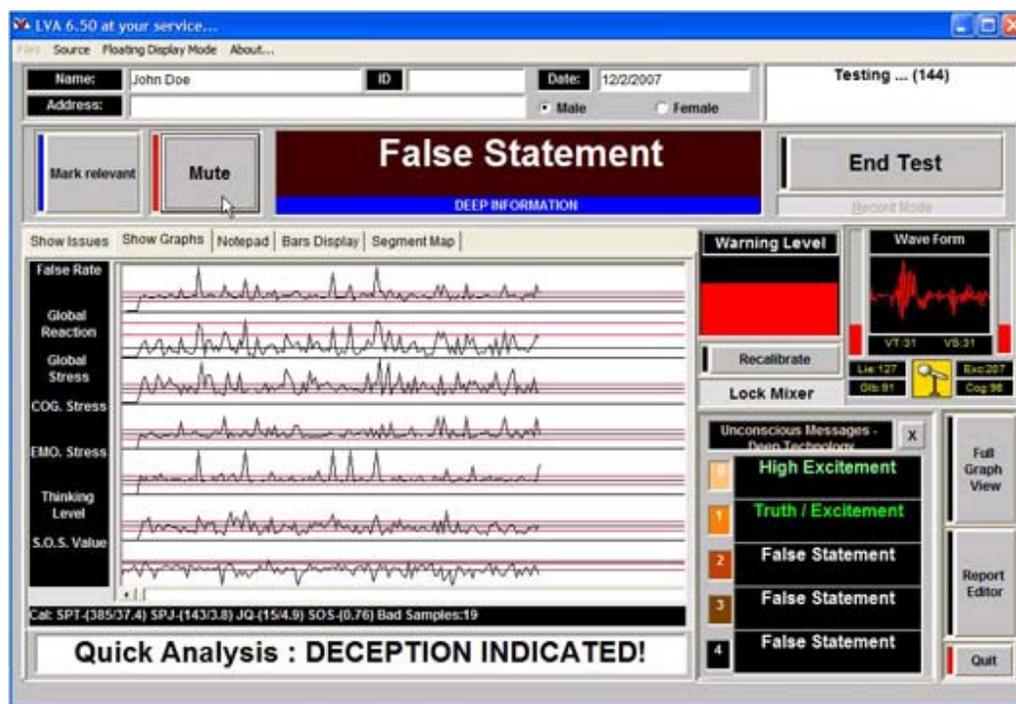


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Courtesy of VoicePrism LLC.

VoicePrism software is built on Israeli technology developed for interrogation.

You can lie, but you can't hide: Software checks Wall Street spin

by **KEVIN JANOWIAK**
October 09, 2008

WASHINGTON – Bottled-up emotions leak out in our speech, despite our best attempts to cap them.

It could be an awkward pause or a slight stutter. Or you might have to dig deeper. Psychologists can break down our vocal patterns and find stress below the surface – hidden anxiety that the human ear can't pick up.

Maybe as a dinner guest you didn't really mean it when you said the food was good. But no one is going to question your honesty. There's no money in it. There is, however, plenty of motivation to listen carefully to corporate executives.

Even battle-tested chief financial officers expose more than they realize through their voice. There's buried treasure in Wall Street chatter -- and some software companies are eager to do the digging for stock analysts and hedge fund managers.

"[Our software] is not a stock-picking tool," said Sean Blair, co-founder of VoicePrism LLC., a leading vendor that analyzes corporate phone calls, "but it will help you better understand the speaker's emotional state."

Corporate earnings calls are open to the public, so there is no espionage involved.

Software companies plug their programs into quarterly earnings calls and troll for clues like volume, speed and time between words. But they are especially interested in moments when speakers deviate from their normal vocal pitch. All voices have a fundamental frequency, and jumping outside of that baseline is a sign of inner tension, they say.

The spikes are caused when CFOs cover topics they would rather avoid – things like lower profits, restructuring and taxes, Blair said.

VoicePrism is based on Israeli technology used for lie detection and interrogation. The software slices apart the vocal wave into categories like “cognitive stress” and “emotional stress” – depicted with line graphs that jog across the screen. Users can analyze recorded or live audio.

The computer program also displays a warning when it suspects a partial truth or outright deception. It doesn’t guarantee that the speaker is lying, Blair said, but it can spot emotional states that are “typical with deception” – hints of fear and embarrassment underneath professional gloss.

Academic experts argue that someone who is stressed isn’t necessarily lying, but that doesn’t mean voice analysis software should be junked.

Two business professors from Duke University have written a paper that finds negative emotions during earnings calls are correlated with poor stock performance.

William Mayew and Mohan Venkatachalam ran 615 earnings conference calls from the first quarter of 2007 through software from Nemesysco Ltd., the Israeli partner of VoicePrism. Their conclusion? When managers show negative traits in their voices, their firms are more likely to miss future earnings expectations over the next three quarters.

“Existing indications suggest that [the software] works,” Mayew said. “It appears to have predictive power in financial markets.”

The Duke study yielded some surprises too, Mayew said. When a manager’s voice skewed negative on a conference call, the professors found a short-term bump in stock price.

It could be human instinct rebelling against bad news, Mayew said. Theories suggest our brains have a natural inclination to resolve anxiety, sometimes by simply dismissing uncomfortable information. So, a manager of a struggling firm might recast a conference call in a positive light. The software can pick up the negative undertones, he said, but investors are blissfully unaware and snap up shares.

The report also found that positive emotions are not tied to future performance. In other words, a cheerful CFO voice does not predict a stock overachiever.

“There’s not going to be a lot of positive pent-up emotion in a manager because they have incentives to tell the market about it as soon as they learn,” Mayew said of one potential explanation. Good news leaks out before the quarterly earnings calls, he said, so analyzing it does not give you an advantage.

One outspoken critic of voice analysis software is Mitchell Sommers, a psychology professor at Washington University in St. Louis. Sommers said programs like VoicePrism are great at detecting stress but are no better than flipping a coin when trying to catch lies.

“If you can show me one article in a peer-reviewed journal that shows ... better than chance detection of deception, I will retract everything,” he said. “You won’t because there is nothing out there.”

Sommers said humans can be better than computers at identifying deception. A 2006 study he led asked participants to “smuggle” items through a security checkpoint at a federal building in Columbia, S.C. After interrogation, voice analysis software identified the smugglers about 36 percent of the time, while an immigration official succeeded more than 70 percent of the time.

A consulting company out of Boston, Business Intelligence Advisors, uses ex-CIA agents trained in interrogation to monitor quarterly earnings calls, but they did not return Medill’s calls.

Mayew, of the Duke study, said he understands the skepticism but the popularity of voice analysis software speaks for itself.

“You can point to real sales that they have as suggestive that it works,” he said.

Other marketed applications of voice analysis software include detecting insurance fraud, testing for pedophilia and monitoring employee satisfaction. The cost varies from less than \$100 for personal use to thousands of dollars for more robust commercial versions.

Tests Database Offline Wizard [System Setting]

Viewing Results :Elaine8_24_07 (TF: C:\Program Files\VoicePrism\VoicePrism.exe) [Subject: 2911853] [Subject: 2911853]

*** EXTREME TENSION ***

Show Segments [Show Main Graphs] [Show Advanced Graphs] [Show Report] [Script Mode] [Statistics] [Print]

No	Start P	End P	Analysis	SPT	SPJ	JQ	AVJ	S.O.S
84	2909240	2911951	* EXTREME TENSION *	454	214	12		3.6
85	2911853	2933992	* HIGH TENSION *	420	290	34		4.43
86	2934342	2956447	EXTREME TENSION	367	338	43		5.26
87	2956357	2978458	HIGHLY STRESSED	331	356	43		5.9
88	2978369	3000478	HIGH TENSION	339	366	40		4.96
89	3000404	3022506	EXTREME TENSION	370	259	42		6.3
90	3022407	3044796	STRESSED	414	238	30		5.14
91	3102850	3106752	EXTREME TENSION	567	250	17		4.93
92	3112732	3134977	HIGH TENSION	353	240	23		8.53
93	3169427	3179385	High Anticipation	527	256	23		4.56
94	3179287	3201387	EXTREME TENSION	440	281	44		5.05
95	3201288	3223388	HIGH TENSION	290	327	47		5.12
96	3223289	3245401	HIGHLY STRESSED	363	325	42		5.2
97	3245374	3267474	EXTREME TENSION	618	307	17		4.88

CAL: SPT-(C:392,R:2.1,W:5.1) SPJ-(C:285,R:2.1,W:6.1) JQ-(C:26,R:2.1,W:6.1) AVJ-(C:5.1) SOS-(C:0.84)
 Fmain-(C:29,R:2.6,W:6.1)

Clipboard File Not Available Analysis Settings: Type: Emotions Only (33) C: range Limited

Courtesy of VoicePrism LLC.

The software can analyze recorded or live audio.