

LAYERED VOICE ANALYSIS

Layered Voice Analysis ("LVA™") is computer software-based technology that analyzes the frequencies of the sound waves of a human voice and provides an emotional/psychological analysis of the speaker. It shows, for example, when a speaker is being deceptive, excited or stressed. LVA™ reports that can be generated include a speaker's conscious and subconscious states and LVA™ can analyze the speech of all aspirated languages.

COMPANY

Developer. LVA™ technology was developed to combat terrorism in Israel by Amir Liberman, whose company Nemesysco, Ltd. is currently the exclusive license holder for all intellectual property rights in LVA™ technology.

Distributor. V, L.L.C., a Virginia limited liability company, is Nemesysco's exclusive North American distributor and its marketing representative for the world. The principals in V, Richard D. Parton, Ph.D., and C. David Watson, founded the company in early 2003. Both are US citizens and hold all voting interests in V. There are no foreign investors. Website is www.Vworldwide.com. Office: 1725 I St., NW, #300, Washington, DC 20006, (202) 349-1130.

HOW LVA™ WORKS

LVA™ runs on laptops, desktop computers or servers and can be made to run on modified computers for very specialized purposes. LVA™ analyzes live voices acquired by microphone or telephone or other communication listening devices, as well as recorded voices in the ".wav" format.

LVA™ identifies 129 parameters of the incoming sound waves and measures the deviations of the parameters from their norm. It applies ten of thousands of mathematical processes to analyze the deviations.

LVA™ establishes the norm, for live interviews, in approximately 30 seconds, through the answers to questions, to which the probability of truth is highest. The norm for live listening and for recordings is found in the "more frequent parameter appearances" that are assumed to indicate a truthful statement¹. The speaker's voice is calibrated to eliminate any "white noise".

LVA™ operates with a "dongle" - a physical security device that inserts into a computer which is programmed to expire every 90 days. To be renewed, V evaluates the customer's compliance with its license agreement. A number of other security devices are built in the software to guard against improper use or theft.

PRODUCTS

1) LVA 6.50 is designed for use within investigative, intelligence and law enforcement agencies. It has three analytical modes (Online, Offline and Interrogation modes) and can serve as a high quality voice recorder.

¹ Other safeguards are in place to ensure the baseline is based on truthful statements, and indicative of the real emotional baseline of the speaker.

Online Mode is used in real time to analyze statements as they are made during a live interview or voice intercept, in person, over the telephone or via other communication device. Five analytical graphs of the voice are made, comparing the voice to its norm, in addition to other analyses.

Offline Mode analyzes recordings, after extraneous background noise (phone rings, car beeps, talk over, etc.) is removed. There are fifteen analytical graphs of the voice, ten more than Online Mode, to take advantage of the increased time that is available and provide more and deeper analysis.

Interrogation Mode allows the questioner to apply polygraph techniques to an LVA™ interview. The analyst may conduct a more traditional "structured" interview that includes relevant, irrelevant and comparison questions, to which "Yes" or "No" is the answer. The full report and analysis capabilities of the LVA™ program are provided.

2) SCA-1 (SECURITY CALL ANALYZER), with its emotion profiler, is designed for volume call intercepts, with intelligence collecting objectives. It picks out the 'one' call that deserves close scrutiny.

3) GK-1 (GATE KEEPER) is designed to screen people entering and/or leaving a location, such as customs/borders, an airport, an office building, a courthouse and so forth. GK-1 uses five questions, and takes less than 30 seconds to provide a "red light, green light" analysis of the subject's risk factor. It focuses solely on intent to do harm, without regard to the traveler's personal characteristics. An artificial intelligence component increases the system's accuracy the longer it is in place, especially after the first 1,000 uses in an environment.

4) OTHER APPLICATIONS based on the same of LVA™ technology are available to private sector and academic clients for use in security, fraud prevention, customer service, research and other carefully administered uses.

TRAINING

For LVA™, there is a required three-week training course generally taken over the course of 12 months in three one week-long sessions, at V's facilities in Waupun, Wisconsin or at your location. The first week of training must be completed before software will be issued. The second week of training occurs after six months usage and the third after 12 months.

PATENT INFORMATION

Patent No. 6638217 (U.S.A.)
Patent No. 73853 (Singapore)
Patent No. NI-137083 (Taiwan)
Patent Application No. 98812287.1 (Republic of China)
Patent Application No. 2313526 (Canada)
Patent Application No. 539473-2000 (Japan)
Patent Application No. WO 99/31653 (PCT)
Patent Application No. 98960070.5 (EU)
(There are more. Please request the complete list.)

CUSTOMERS

LVA™ users in the US include the Wisconsin Department of Corrections and several Wisconsin police departments. Highway Insurance (UK) uses LVA™ as do several other insurance companies in the UK and governments in other countries that have not to date authorized the disclosure of their names. Additionally, beta test projects are currently being conducted by Northrop Grumman, the Palm Beach Police Department, PLS Projections, a Swedish psychological research institute, the State of New Mexico and several US government agencies that have to date not authorized the disclosure of their names.

POTENTIAL GOVERNMENT USES

There are many potential uses by government agencies for military and homeland security reasons, as well as for US law enforcement, such as:

- Interrogating, interviewing or screening targeted persons
- Scanning live or stored voices in volume

COMPETITION

There are no other frequency-based voice analysis technologies.

LVA™ differs substantially from traditional voice stress analysis and truth verification technologies. LVA™ is frequency-based and time-domain based analysis. The others are energy-based. LVA™ is a psychological assessment, not a physiological assessment. LVA™ works well in free flowing conversation, and does not require a scripted set of "yes or no" questions and answers, although it does have a mode that can function in a polygraph-style exam. LVA™ does not require that the subject be under jeopardy; all it requires is that the subject has intent to be believed.

STUDIES

Nemesysco has not disclosed the algorithms, physics and new science on which its technology is based, nor has it revealed its source code.

Evaluations of LVA's polygraph-like capabilities have been conducted, since 1998, by the Air Force Research Lab ("AFRL") in Rome, NY, funded by Dept of Justice. Contact Julian Burke, 703-549-0536, for study leaders. The published reports and other findings from the AFRL result from studies conducted prior to the researchers receiving training on how to use the technology. We recommend receiving training first.

The developer's website has links to the following studies:

1. A summary of the JJ Palmatier study for the Michigan state police. The Truster-Pro 6.30 (also known as Vericator 6.30 distributed byTrustech) product was an early version of LVA 6.50. www.nemesysco.com/Rep_JJP.html
2. A press release about the first AFRL study, which found LVA™ 100% accurate in determining stress. Law enforcement and other governmental agencies can obtain the full report from AFRL. http://www.nemesysco.com/Rep_RomeLab.html
3. A research report by Drs. Guy van Damme, former Associate Professor, University of Durban Westville, South Africa. It also used the Truster Pro 6.2.1. Drs. van Damme has been

a distributor for Nemesysco in South Africa subsequent to the study.
http://www.nemesysco.com/Rep_SouthAfrica.html

V is currently working with a number of US government agencies to set up independent studies of LVA™ technology. Studies might:

- (a) identify the similarities and differences between LVA™ and the traditional technologies such as polygraph and CVSA,
- (b) confirm accuracy rates of LVA™,
- (c) correlate LVA™ findings to other research, such as the map of brain functions, and
- (d) identify mental and physical health and quality of life applications of LVA™.

Although many government agencies already have the data necessary for the types of studies in which they are interested, V is working to identify sources of data, which include recorded statements, in cases with known conclusions.