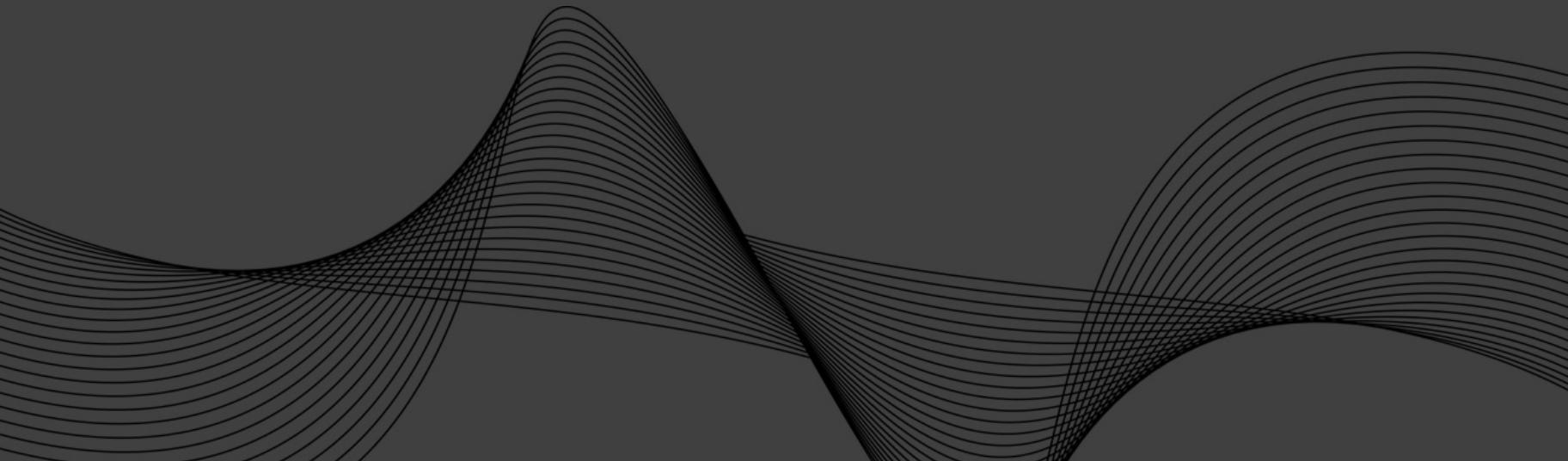


Добрый день!

nemesisco  
voice analysis technologies





ЗНАТЬ, а не  
предполагать!

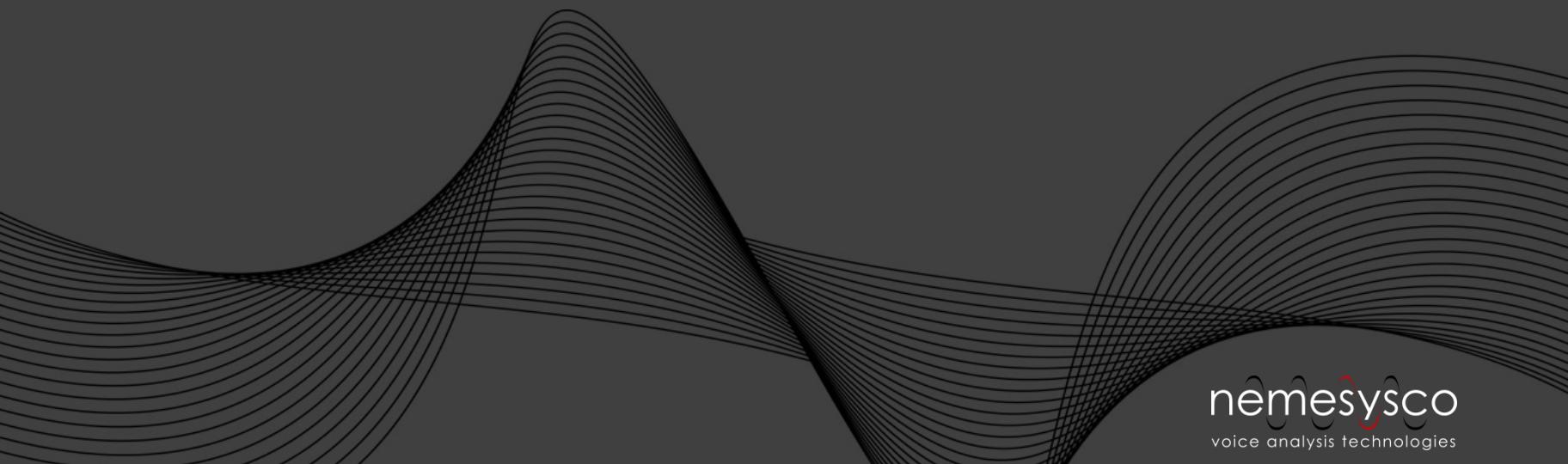
nēmesysco

# Nemesysco

## Voice Analysis Technologies

Nemesysco Ltd. Зарегистрирована в Израиле в 2000 . Основатель компании и создатель технологии эмоционального анализа голоса Amir Liberman. Технология запатентована с 1997 года.

Мы проводили исследования и разработки этой уникальной технологии анализа эмоции на протяжении последних 17 лет и успешно внедрили ее во многих различных вертикальных рынках, и установках по всему миру.



# Voice Analysis

Voice analysis is  
an every day thing...

- Распознавание речи "Speech-to-text"
- "Идентификация по голосу "Voice Print"
- Определение эмоций по голосу "Emotion Detection"



# (LVA) составляющие технологии многоуровневого анализа голоса

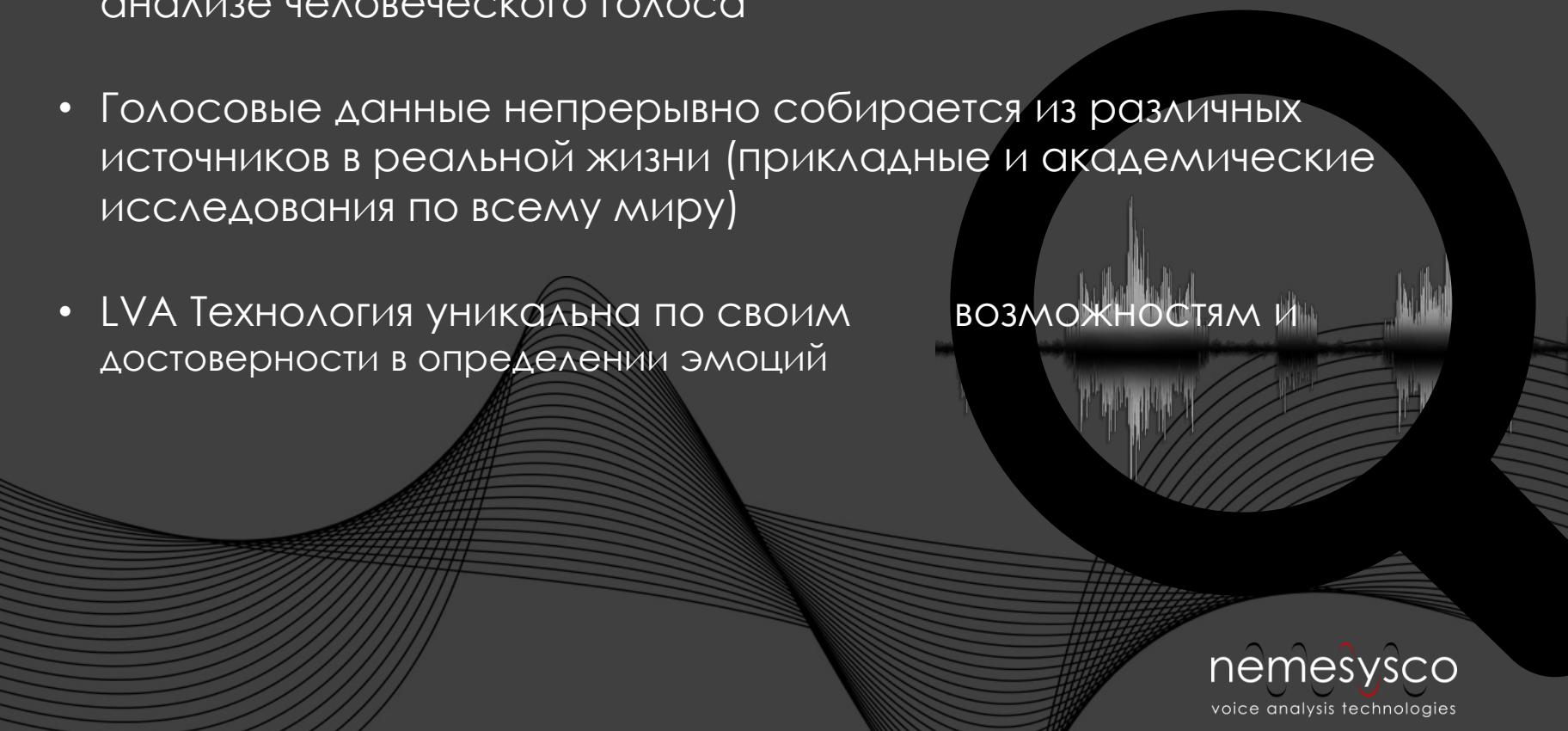


# Nemesysco

## Voice Analysis Technologies

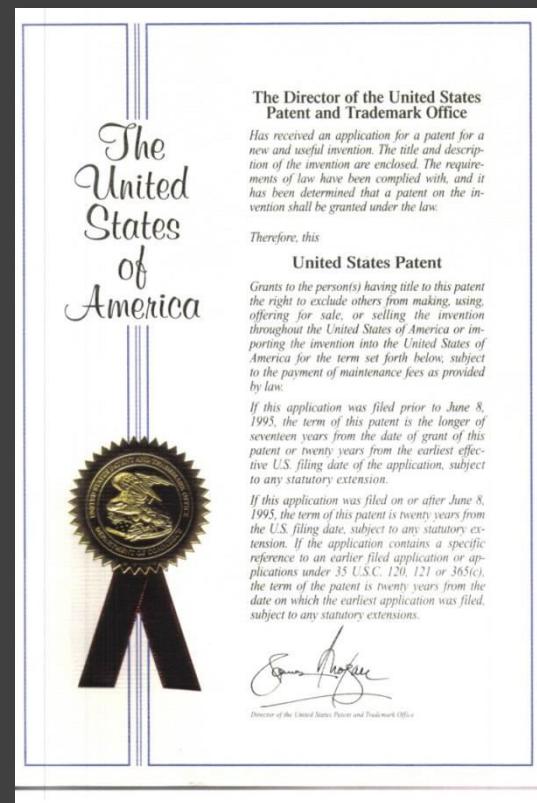
### Nemesysco's технология многоуровневого анализа голоса (LVA)

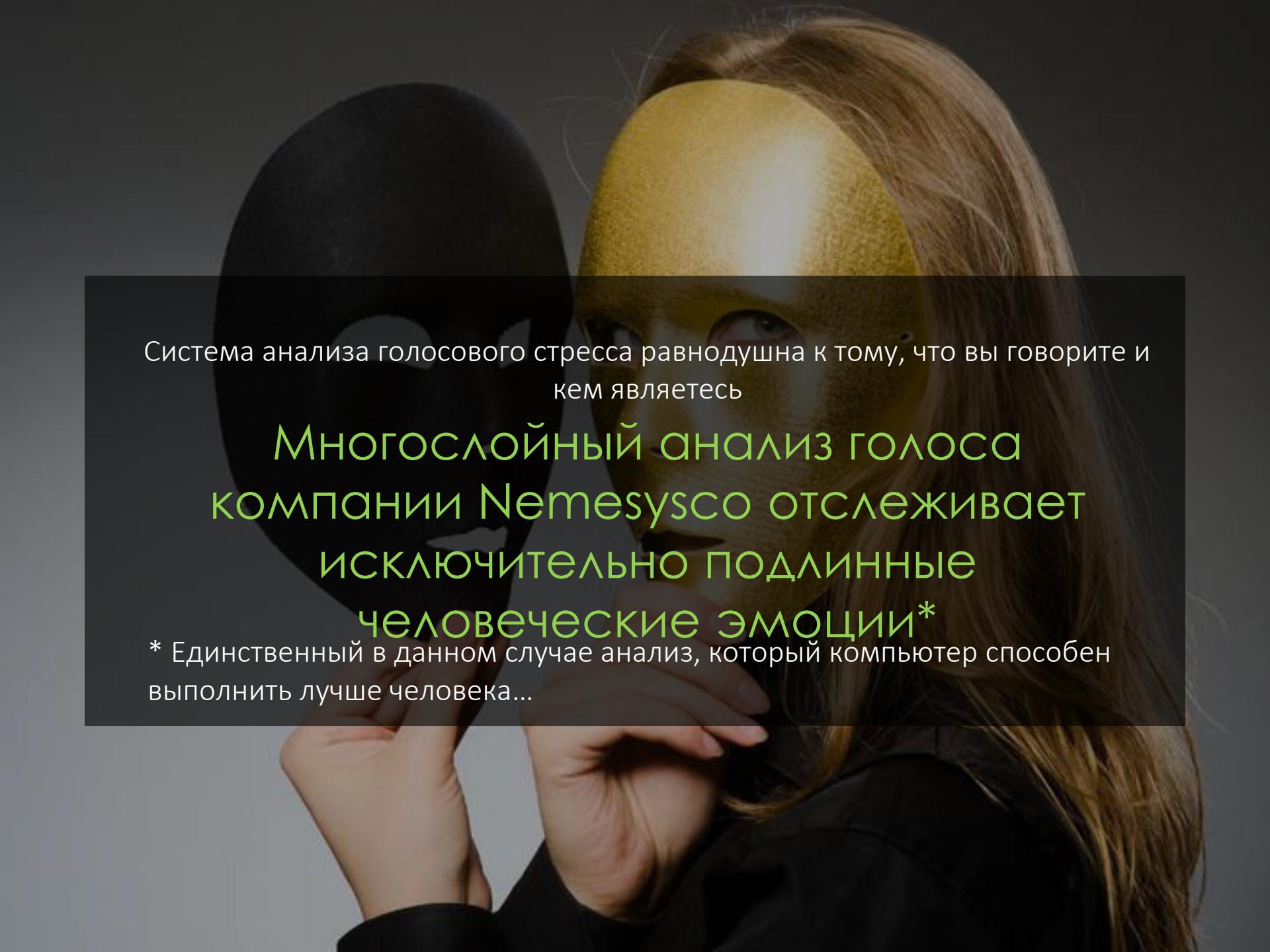
- LVA Технология основана на патентованных измерениях и анализе человеческого голоса
- Голосовые данные непрерывно собираются из различных источников в реальной жизни (прикладные и академические исследования по всему миру)
- LVA Технология уникальна по своим достоверности в определении эмоций



возможностям и

# Патенты



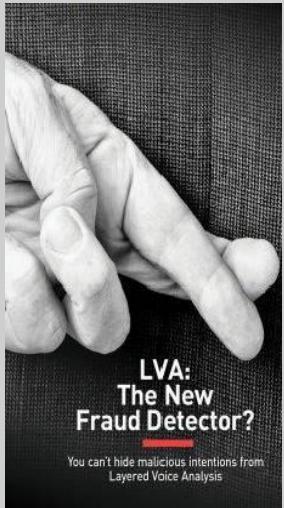


Система анализа голосового стресса равнодушна к тому, что вы говорите и  
кем являетесь

Многослойный анализ голоса  
компании Nemesysco отслеживает  
исключительно подлинные  
человеческие эмоции\*

\* Единственный в данном случае анализ, который компьютер способен  
выполнить лучше человека...

# Nemesysco's семейства продуктов



# 3 Modes Of Operation

## 1 Interactive Mode

Автоматизированная процедура  
(Человек-ПК)

## 2 Over The Phone Mode

Структурированное интервью проводимое  
оператором

## 3 I.V.R Integration or Web Interface

Использование систем IVR или web service



*Saves resources, reduces handle time*

# Что такое LVA-i?

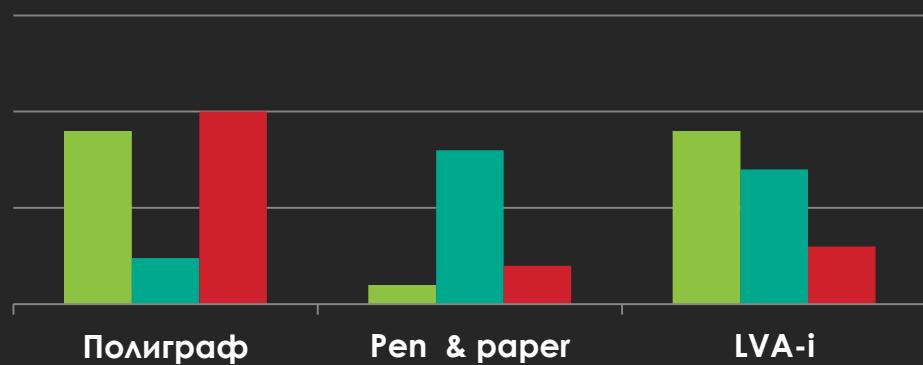


LVA-i баланс между оптимальной точностью, основанной на психофизиологических измерениях, простотой использования и справедливой ценой, позволяющей проводить массовое тестирование

## LVA-i:

- ✓ Удобство работы
- ✓ Высокая точность
- ✓ Невысокая цена

■ Точность ■ Комфорт ■ Цена



# CR7 Оценка кредитных рисков

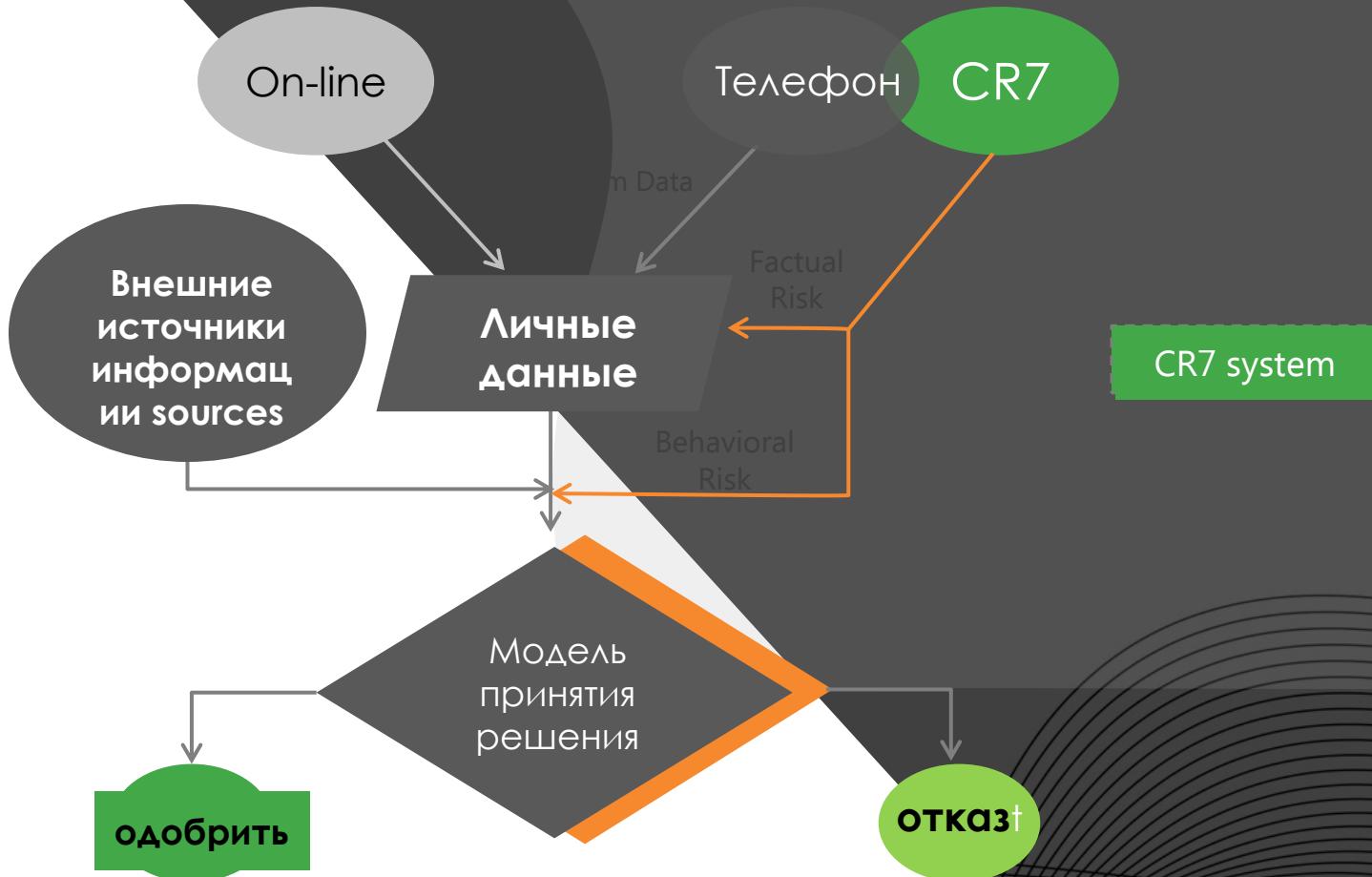


KNOW™ your Risk

Verify facts instantly.  
Make educated decisions faster.

CR7 provides  
Immediate facts verification and overall  
fraud intention detection through unique  
voice analysis platform, to improve your risk  
scoring model.

# CR7 implementation



# Credit Risk - Case Study 2015

Russian bank



The test covered 2,832 applicants.

Grant / reject decision was done regardless of the technology analysis.

## LVA validated:

- 1) Credit history
- 2) Ability to pay
- 3) Intention to pay

The questions were administered by an IVR.

Results were divided into **6 risk groups**



The table shows the collection status after 3 months:

Risk Group	1	2	3+4	5+6
Total applications	751	10	394	733
Denied app.	362	3	204	<b>375</b>
Paid in full	<b>90.15%</b>	<b>80%</b>	<b>51.02%</b>	<b>51.98%</b>
Problematic	<b>8.52%</b>	<b>20%</b>	<b>48.98%</b>	<b>46.38%</b>
Defaulted	1.33%	0%	0%	1.64%

# Отчет системы LVA-i

## Интерфейс системы LVA-i дружелюбен и интуитивен

- ✓ Нет привязки к полу, возрасту и национальности
- ✓ Отчет генерируется автоматически в течении минуты, имеет простой и понятный интерфейс
- ✓ Независимость системы от языка на котором говорит опрашиваемый
- ✓ Возможность проведения массового
- ✓ тестирования



# **LVA-i** Организация мест для тестирования (Латинская Америка)



# Общие характеристики

## Центр тестирования



## Производительность

- Одно рабочее место для автоматического тестирования ( первый уровень)
  - 30-40 тестов за 8 часовой рабочий день на одного оператора
- Системы второго уровня
  - 10-15 человек в день- проверка на системах анализа голоса -1 рабочее место (один специалист следователь)
  - 3-4 полиграфные проверки в день на одного полиграфолога

# Стандартные темы в опросниках по персоналу

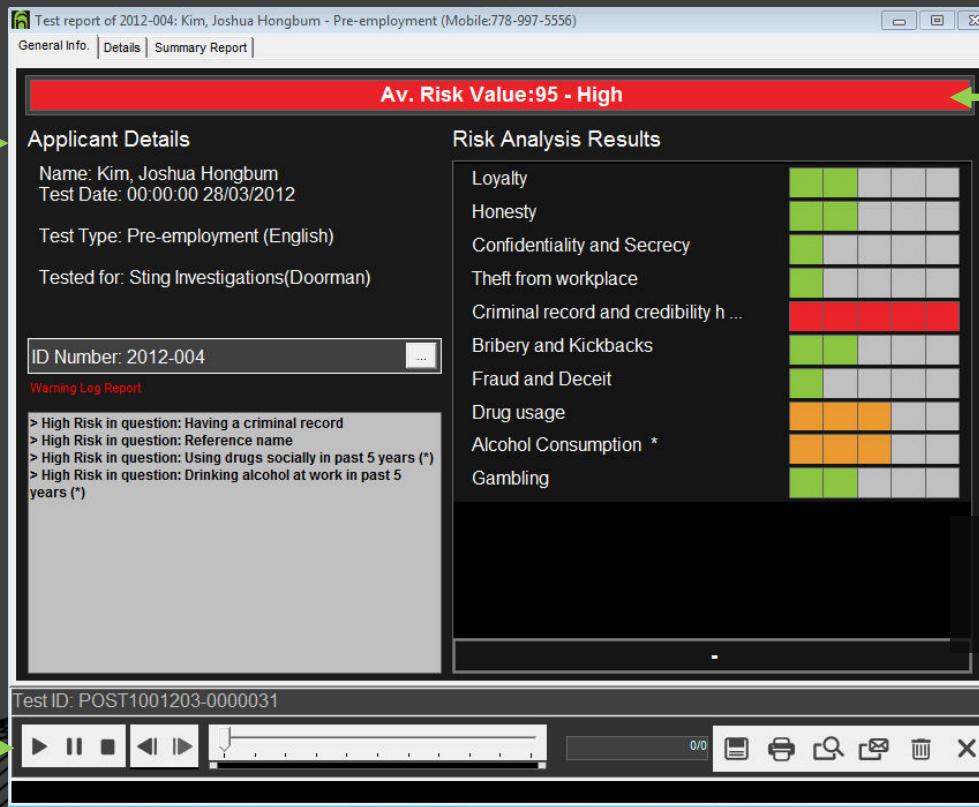


- Корпоративная лояльность
- Соблюдение конфиденциальности
- Воровство на рабочем месте
- Употребление наркотиков
- Донесение начальству
- Работа в команде
- Взятки и откаты
- Азартные игры
- Употребление алкоголя, пьянство
- Трудовая деятельность
- Преступные группировки
- Террористические группы
- Сексуальные домогательства
- Специальные тесты:
  - Водители и экспедиторы
  - Кладовщики
  - Кассиры
  - Служба охраны и безопасности
  - Уборка и техобслуживание
  - Продавцы
  - «Полевые» менеджеры
  - Начальник смены, отделения

# Риск отчет: максимальный уровень доступа

Сведения о кандидате  
Двойной щелчок мыши,  
чтобы редактировать.

Финальная ОЦЕНКА РИСКА



Аудио плеер

Кнопки управления:  
Сохранить, Печать,  
Переслать, Отправить,  
Удалить

# РИСК отчет: представление деталей анализа



Индикатор низкого риска (5%-40%)



Индикатор среднего риска (41%-60%)



Индикатор высокого риска (61%-95%).

The screenshot shows a software window titled "Test report of 2012-004: Kim, Joshua Hongbum - Pre-employment (Mobile:778-997-5556)". The window has tabs for "General Info.", "Details", and "Summary Report". The main area is titled "Detailed Analysis" and displays a hierarchical list of findings:

- Criminal record and credibility history**
  - 1> Opinion about checking credibility check (27) <Stress><Low Concentration>
  - 1> Reason for leaving previous job (14) <Stress>
  - 1> Opinion regarding employee not reporting criminal record (12) <Stress>
  - 1> Having a criminal record (95) <Stress>
  - 1> Reference name (62) <Stress>
  - 1> When broke the law in the past 5 years (10) <High Stress><Concentration>
  - 1> Two most serious offenses in the past 2 years (20) <Stress>
  - 1> Being a suspect in criminal activity in the past (10) <Stress>
- Bribery and Kickbacks**
- Fraud and Deceit**
- Drug usage**
  - 1> Opinion regarding drug usage (55) <Stress>
  - 1> Own attitude towards workers using drugs at work (10) <Stress>
  - 1> What to with employee caught using drugs and shows remorse (16) <Stress><High Anticipation>
  - 1> Co-worker asking not to report his drug usage (25) <Stress>
  - 1> Using drugs socially in past 5 years (42) <Stress><Concentration>

At the bottom of the window, there is a toolbar with icons for file operations and a status bar showing "Test ID: POST1001203-0000031".

# Case Study:

## RA7 Fraud Detection Solution at UNIQA Insurance (Hungary, 2011)



**Sample incident:** a 4.3 magnitude earthquake in Hungary, Europe, Saturday, January 29, 2011 at 17:41

**The day after the earthquake:** 163 claims were submitted over the phone.

- ✓ The further away from the epicenter of the quake - the more fraudulent claims were recorded
- ✓ Operators in the call center were able to handle and defeat fraudulent claims as they were received by phone
- ✓ Only 119 claims were found to be truthful & 44 (27%) to be fraudulent



Magnitude	Legitimate claims	High Risk claims
4.3	99	2
3.6	20	18
2.2	0	18
1.3	0	6

# Users testimonials and awards

## Layered Voice Analysis Field Report

For Official Use Only / Law Enforcement Sensitive

Det. Joanne Swyers – Continued

another interview. She agreed, but, refused to submit to being interviewed using LVA during the second interview.

However, based on the information I had received from the first LVA, I confronted her about her lying, playing word games and the indications of sexual arousal. At this time she began to talk and her initial story fell apart.

Specifically:

She had initially denied ever being alone with her accuser, later; she admitted that she was alone with the child. The LVA had indicated that she had knowledge that she wasn't disclosing specific to this issue.

She had initially denied playing a "naked game" with the child, but later admitted that she did.

She denied the child was ever in her bedroom.

She denied the child ever saw her naked body.

She admitted inappropriate behavior consisting of confessing to illegal sexual contact.

As a result of the disclosures obtained by the LVA, she agreed to a Child Protection Order that her mother is doing daycare.

The parents of the second child identified a person to interview the child.

Without LVA's Off-Line analysis, I would have had to interview the child again. By utilizing LVA's Off-Line analysis, I was able to break her story apart and successfully identify the subject of the investigation and the day care center.



Ministry of Defense | Defense Export & Defense Cooperation

5024

Date: April 10<sup>th</sup>, 2011



ESTADO DO RIO GRANDE DO SUL  
SECRETARIA DE SEGURANÇA PÚBLICA  
DEPARTAMENTO DE INVESTIGAÇÃO E ASSUNTOS ESTRATÉGICOS  
SETOR DE ANÁLISE DE VERACIDADE



Porto Alegre, RS, 18 de dezembro de 2006

Dear President:

Indicamento a solicitação da Truster Brasil, vimos por meio desta informar satisfação com o uso da tecnologia de análise de voz AVM adquirida por intermédio da LVA. A mesma grande ajuda nos vários inquéritos e casos em que atuamos por requisição de Autoridades Policiais, Ministério P. e Judiciário, no Rio Grande do Sul e fora dele. Recentemente já aplicamos mais de 1200 testes, todos contribuindo para o conterimento das mesmas, ajudando a identificar autores de crimes e indicadores essenciais nesses casos. Também colabora de forma significativa a tratar a investigação policial sobre os suspeitos. Este fato tem contribuído intensamente no tempo e de recursos empregados pelos órgãos policiais na solução dos crimes. Isso dizem com orgulho de termos sido pioneros no uso desta tecnologia, e é de grande utilidade para todas as forças policiais.

Osamente,

Wivés Azevedo – Insp. Pol.  
em Veracidade

Ao Sr.  
Sr. Mauro J. Nadvorny – CEO,  
Truster Brasil,  
Nesta Capital.

Sincerely yours,  
Brig. Gen. (res.) Shmaya Avieli  
Director



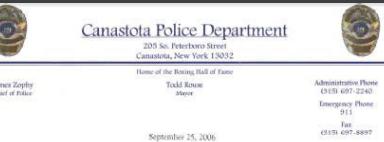
Guatemala, 04 de Abril de 2011

Señores  
NEMESYSO  
Presente

Estimados señores:

Por favor, me permitan constatar que la empresa International Projects y Representaciones, ha prestado el servicio de prueba de veracidad utilizando la tecnología de análisis de voz, como apoyo al proceso de selección de candidatos de la Gerencia de Recursos Humanos de la Superintendencia de Administración Tributaria, servicio que ha sido de calidad y exactitud razonable en el tiempo de entrega de informes.

Quedo a su entera disposición para cualquier duda o información complementaria que ustedes puedan requerir.



September 25, 2006

Mr. Amair Liberman  
Nemesysco Ltd.  
POB 1182  
Zurin, 42823  
Israel

Re: LVA Technology  
Dear Amair,

I am writing to thank you for your continuing support with LVA. As you are aware in 1997 I took part in a government review sponsored by the National Institute of Justice, Washington, DC. The project was coordinated by the National Law Enforcement Corrections Technology Center in Rome, New York. Being a Police Investigator for two years prior to this, I was involved in many cases that required hundreds of interviews with the public. Without the use of LVA technology (I used your early version then Pro) I truly believe that some of the guilty may have gone unpunished.

The LVA brings a new era in investigation techniques. Without the tedious mining along with it has certainly made life less arduous than the use of the traditional Polygraph that is widely used throughout the United States.

In the time that I have used the system I have had the opportunity to run hundred voice stress tests for my department and the surrounding communities. I have found the accuracy rate is approximately 97% with confession and conviction.

It truly supports the use of LVA and would like to know in using Voice Analysis our officers System. I want to personally thank you and Nemesysco Ltd. for the continuous support and fast and courteous service whenever I needed a question answered or if my system.

At : The CEO  
Nemesysco Corp.  
Hatnora 8  
Netanya  
Israel

Dear Sir,

This letter serves to compliment you on your technology using layer voice analysis (LVA) and the training in its use given by your offices in South Africa.

My name is Brig. Pieter Scholtz and I retired as Brigadier in the South African Police (SAP). My responsibilities were the instruction and training of members of the various security departments in the RSA (police, army, correctional services). I established the VIP protection unit and was the Commanding Officer for several years, attached to the State President's Office.

I am presently MD of "Integrity Verification & Honesty Maintenance Corporation", a company specializing in the assessment of subjects in any matter, on the mandate of the clients.

The LVA technology was introduced to us by your offices in South Africa on the recommendations from another user. Being convinced that polygraph was the only reliable tool in the lie detector field, I was amazed to see the incredible advantages and flexibilities your technology offers. Its accuracy rates also surpassed any of my expectations. Cynical at first, having been confronted with Voice Stress Analysis (VSA, CVSA or FSE) before, it was a pleasant eye opener to be able to physically see and experience the difference between this older technology and yours, the LVA.

My company has now acquired one LVA system and has qualified two staff members as operators and more orders will follow in the near future. It is my firm opinion and belief that this technology is a must have for every police and security service worldwide and an invaluable tool for employment officials and risk officers in the publicas as well as the private sector.

Please accept my congratulations on your development and keep up the good work,

Yours sincerely,  
Brig. P. Scholtz,  
Cape Town,  
South Africa  
+27 82 928 8869



ЗА  
УКРЕПЛЕНИЕ  
БЕЗОПАСНОСТИ  
РОССИИ  
НАЦИОНАЛЬНАЯ ОТРАСЛЕВАЯ ПРЕМЬЯ  
ПРЕМИЯ  
СУБР  
2007

ЗОЛОТАЯ  
МЕДАЛЬ

Комплекс CS-1  
(Crystal Sky)

Компании

NEMESYSO, Ltd



nemesysco  
voice analysis technologies

# Academically verified research proved the effectiveness of LVA technology



"We find that higher levels of positive (negative) affect, as operationalized via higher levels of excitement (cognitive dissonance) determined by proprietary LVA software, conveys good (bad) news about future firm performance..."



"Psycholosoft, a research group affiliated with the Department of Psychology at Japan's Tsukuba University, determined that Nemesysco's Layered Voice Analysis (LVA) technology is a reliable and valid tool for detecting mental stress through speech".



**MAMATA MEDICAL COLLEGE**  
Recognised by Medical Council of India & Government of India  
Affiliated to Dr NTR University of Health Sciences ,Andhra Pradesh

"A significant correlation was seen between the emotional factors and certain personality traits... Thus the emotions displayed through voice can be used as a tool to determine personality."



"It is clear that LVA is a powerful tool to assess the sexual arousal of pedophiles."

Truthful/Deceptive Opinions Only With No Inconclusives Allowed

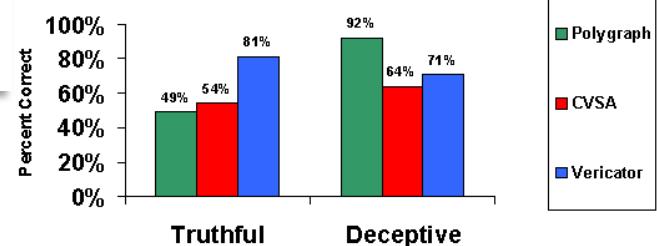


Figure 1

deceptive subjects at a high statistically significant rate, for polygraph,  $\chi^2(1, N = 69) = 13.911, p<.000$ , and for the Vericator,  $\chi^2(1, N = 76) = 20.715, p<.000$ . Concurrently, the CVSA results were not statistically significant,  $p>.169$ .

# Бриллиант эмоционального состояния

## Концепция бриллианта эмоционального состояния человека

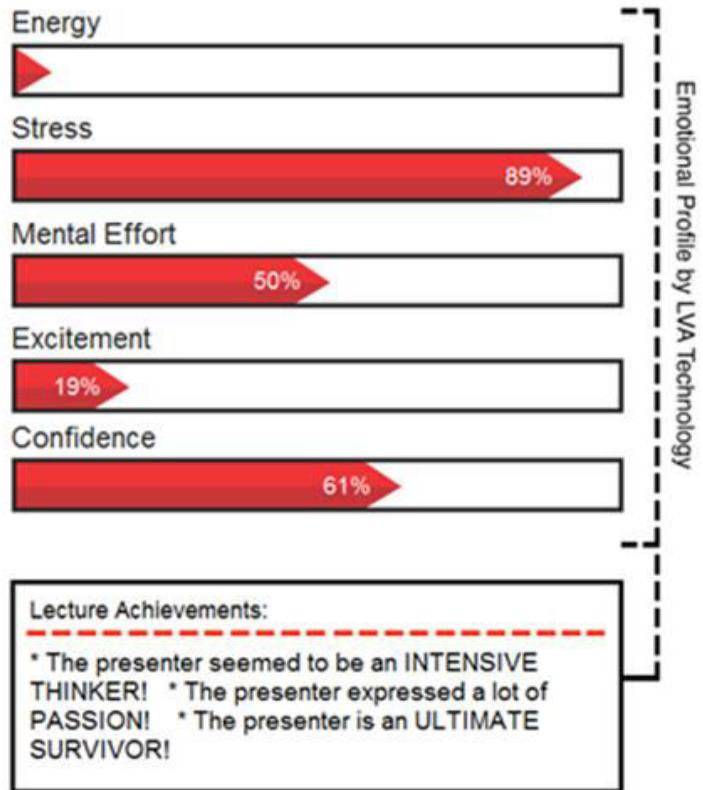
*“Не существует плохих или хороших эмоций.... Смысл им придает только контекст.....”*



- Разработан на основе данных, полученных компанией Nemesysco, в ходе различных проектов по использованию системы многослойного анализа голоса
- Четкое и понятное графическое отображение сложного эмоционального состояния человека
- Способен работать в режиме on-line, отображая динамику эмоционального состояния человека в настоящее время и режиме off-line, создавая индивидуальный эмоциональный профиль личности, на основе ранее полученных данных

\*Эмоциональный бриллиант отображает 8 базовых эмоциональных состояний человека

# Voice Analysis for Emotion Detection



# Voice Analysis for Emotion Detection



## Lecture Achievements:

- \* The presenter seems to ENJOY this lecture!
- \* The presenter seemed to be WELL PREPARED!
- \* The presenter was EXTREMELY ENERGETIC!
- \* The presenter expressed a lot of PASSION! \*



# От эмоционального профиля к оценке рисков

- ✓ Вся система оценки рисков основана на обнаружении отклонений от базового состояния организма
- ✓ Эмоциональный бриллиант Nemesysco отражает как базовое состояние организма (гомеостаз), так и состояние в текущий момент времени (реакции отслеживаются «здесь и сейчас»)
- ✓ «Уровень риска» Nemesysco рассчитывается на основании эмоциональных отклонений от базового состояния организма



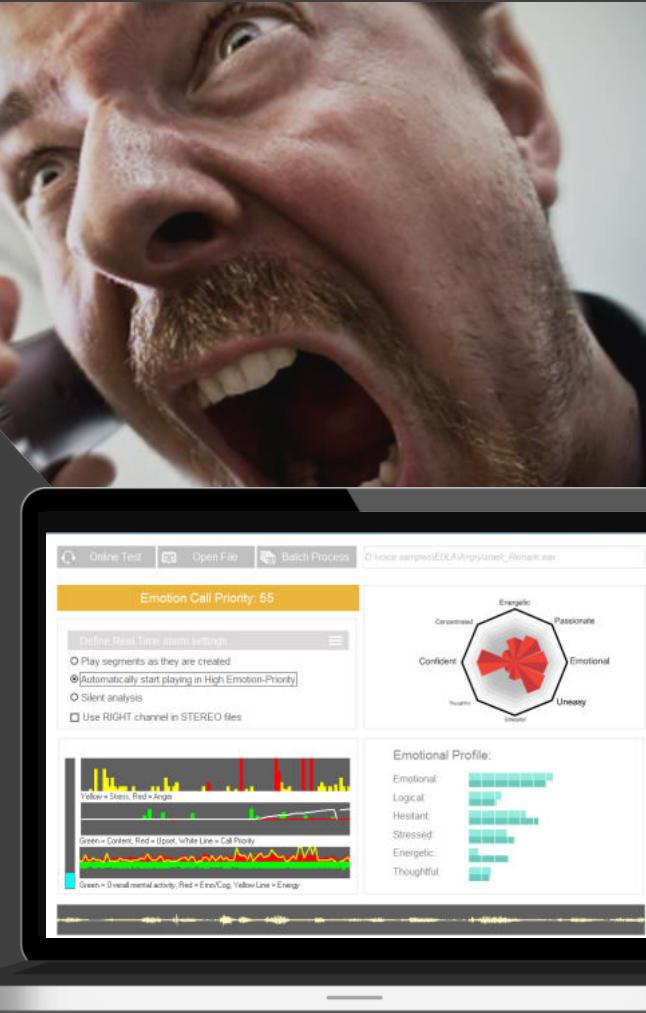
# QA5 - Call center контроль качества обслуживания

KNOW™ your call center

Get real-time alerts when  
your customers are getting angry

QA5 allows call centers to

- Real time monitor customer-agent interactions
- Monitor agents performance over time
- Build clients profile (likes, dislikes, personalities...)
- Improve sales through optimized customer-agent interaction



# Комплексный феномен лжи

## Различные виды лжи:

- ✓ Защитная ложь
- ✓ Наступательная ложь
- ✓ Ложь во благо другого - «белая» ложь
- ✓ Ложь во избежание смущения, стыда
- ✓ Маленькая ложь ради приличия
- ✓ Шутка как спонтанная реакция

**LVA-i – это не детектор лжи, а технология для экспресс-проверки и оценки рисков , связанных с человеком**

СПАСИБО

