Revolution in Accuracy and Speed of Voice Biometrics
About Phonexia
Turning voice to knowledge!
19+ years in speech processing
12+ years of commercial activities
50+ people

Private company fully owned by 5 founders

Worldwide activity
Our Clients and Partners

And many more...
Strategic research partner

Brno University of Technology, Faculty of Information Technology, Speech@FIT research group

Success in U.S. NIST evaluation, teamed together with Brno University of Technology
A complete set of state-of-the-art speech technologies in a single software platform
PHONEXIA SPEECH PLATFORM FOR GOVERNMENT

- Speaker Identification
- Speech Transcription
- Language Identification
- Keyword Spotting
- Gender Identification
- Speech Quality Estimation
- Age Estimation
- Voice Activity Detection
- Diarization
- Denoiser
Government Use Cases
Different Users, Different Needs

**Strategic**
MI/CI
SIGINT
COMINT
Massive interception
National security

**Tactical**
MI/CI
Tactical SIGINT
Local interception
Immediate local threats

**Archive Search**
LEA/Police
Organized crime
Anti-narcotics
Investigation

**Forensic**
Forensic Labs
Court cases
Quantified evidences
Detailed reports
Example: Strategic Speaker Spotting

INPUT AUDIO STREAM

SQE Speech Quality Estimator

VAD Voice Activity Detection

GID Gender Identification

LID Language Identification

SID Speaker Identification

SPEAKERS OF MY INTEREST

1,000,000 calls per day

Example: Strategic Speaker Spotting

1,000,000 calls per day 100 calls per day
Link Analysis

Explore relations among people using several phones

Additional data for investigation
Biometrics
Revolution in Voice Biometrics in 2018
iVector

PAST

NOW

PHONEXIA
DEEP EMBEDDINGS™
Deep Embeddings™

<table>
<thead>
<tr>
<th>Feature</th>
<th>iVector</th>
<th>Deep Embeddings™</th>
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<tbody>
<tr>
<td>SPEED (FTRT)</td>
<td>5</td>
<td>25</td>
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<tr>
<td>5 times faster than iVector</td>
<td></td>
<td></td>
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<tr>
<td>EER ON NIST16 DATA SET</td>
<td>13%</td>
<td>7%</td>
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<tr>
<td>double accuracy than iVector</td>
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<tr>
<td>RAM CONSUMPTION (GB)</td>
<td>2.07</td>
<td>0.29</td>
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<tr>
<td>7 times lower RAM consumption</td>
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Measurements

![Diagram showing measurements of equal error rate (%)]
Team Efficiency

PAST

NOW

- Less manual job
- More time for other analytics tasks.
Higher Percentage of Resolved Cases

Revealing most of the network.
Key Takeaways

Complete portfolio of Speech Technologies in a single software platform.

Rapid increase of accuracy and speed of the new generation of Speaker Identification technology.

Unlock new possibilities for security and defense use cases.
Thank you for your attention

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Head of Product

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