

# Ravel Diagnostics

## Shazam for Respiratory

AI-powered health screening from your pocket



## Vision

Ravel Diagnostics is redefining health diagnostics through sound.

We harness AI-powered audio analysis to deliver noninvasive, real-time diagnostic insights via everyday devices, starting with smartphones.

Our goal is to detect a wide spectrum of conditions, from vocal cord disorders to respiratory and complex neurological diseases, using voice and breath recordings.

## Why It Matters

Vocal cord and respiratory conditions are underdiagnosed and undertreated, with diagnosis often delayed due to the need for invasive tools and specialist referrals.

## Current Problem

Diagnosis today relies heavily on endoscopy - invasive, specialist-dependent, and slow. Patients often go untreated due to delays, access issues, or lack of follow-up.

## Our Solution

**Record. Analyze. Diagnose.**

Using a smartphone, our app captures patient audio, analyzes it using deep learning, and delivers diagnostic insights directly to clinicians.

### Key Benefits

- Early detection of vocal cord and respiratory conditions
- Noninvasive follow-up for chronic illness and cancer recurrence
- Decision support tool to reduce misdiagnosis and unnecessary procedures
- At-home monitoring and telemedicine-ready
- Rapid triage for specialist referral

## Our Edge: The Team & Technology

We combine **deep medical expertise** with **audio and AI leadership**:

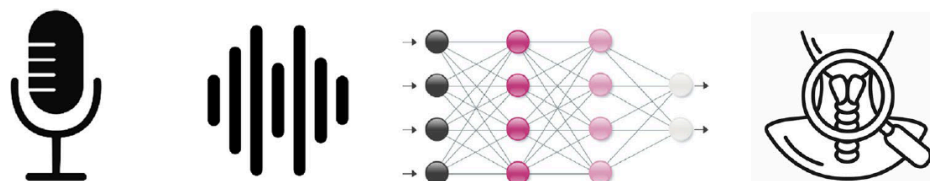
- **Dr. Idit Tessler & Dr. Eran Alon** - Clinicians driving use cases and access at Sheba Medical Center
- **Eyal Naimi** - AI & machine learning technical expert
- **Tomer Elbaz & Nir Kozlovsky** - Audio technology and consumer device integration veterans.
- **Sheba Hospital ARC** - Strategic partner with exclusive access to **real-world patient recordings** via Sheba Connect

## How It Works

1. Record patient using a smartphone
2. Normalize for mic specs with DSP calibration
3. Preprocess and analyze audio via neural networks
4. Return diagnosis to the attending physician

### Target Accuracy:

- 0% False Negatives (no missed critical conditions)
- <10% False Positives



## Product Roadmap (POCs)

POC	Focus	Outcome
<b>1. Feasibility</b>	Binary detection of vocal cord polyps	Validate model accuracy
<b>2. Accessibility</b>	Smartphone-recorded audio analysis	Account for mic variability & real-world acoustics
<b>3. Data</b>	Sound recordings of all Sheba patients	Data warehouse for modeling
<b>4. Value</b>	Classify pathology type/severity	Extend to multiple pathologies
<b>5. Deep &amp; Wide</b>	Respiratory sound classification	Detect asthma, COPD, etc.
<b>6. Longitudinal Care</b>	Track condition over time	Personalized treatment monitoring
<b>7. Future Screening</b>	Early detection of neurological diseases (e.g. Parkinson's)	Use longitudinal datasets & patient data

## Market Opportunity

- **8% of population** suffers from vocal cord conditions, yet **only 10% receive treatment**
- **6,000+ hospitals** and **30,000+ clinics** in the U.S.
- No direct competitors offering **sound-based diagnostics via consumer devices**

## Business Model

SaaS: Offered via **app + cloud service**

- **Per-site licensing** for hospitals/clinics
- **Per-use model** for individual practitioners

## Current Status

Partnership formation, Sheba ARC

Developing initial models with public datasets.

POC and clinical validation under way in collaboration with **Sheba Medical Center**.

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### Contact:

Nir Kozlovsky

Ravel Diagnostics, Co-Founder

[nirkoz@gmail.com](mailto:nirkoz@gmail.com)

[LinkedIn](#)