Shishuvani: AI Stethoscope for Pediatric Respiratory Health

Harnessing artificial intelligence to detect respiratory conditions in children through simple audio analysis—anytime, anywhere.

The Pediatric Respiratory Challenge

6.3...

Children with Asthma

In the US alone, with many cases underdiagnosed in young kids

#1

Leading Cause of Death

Pneumonia in children under 5 worldwide (WHO)

90%

Detection Accuracy

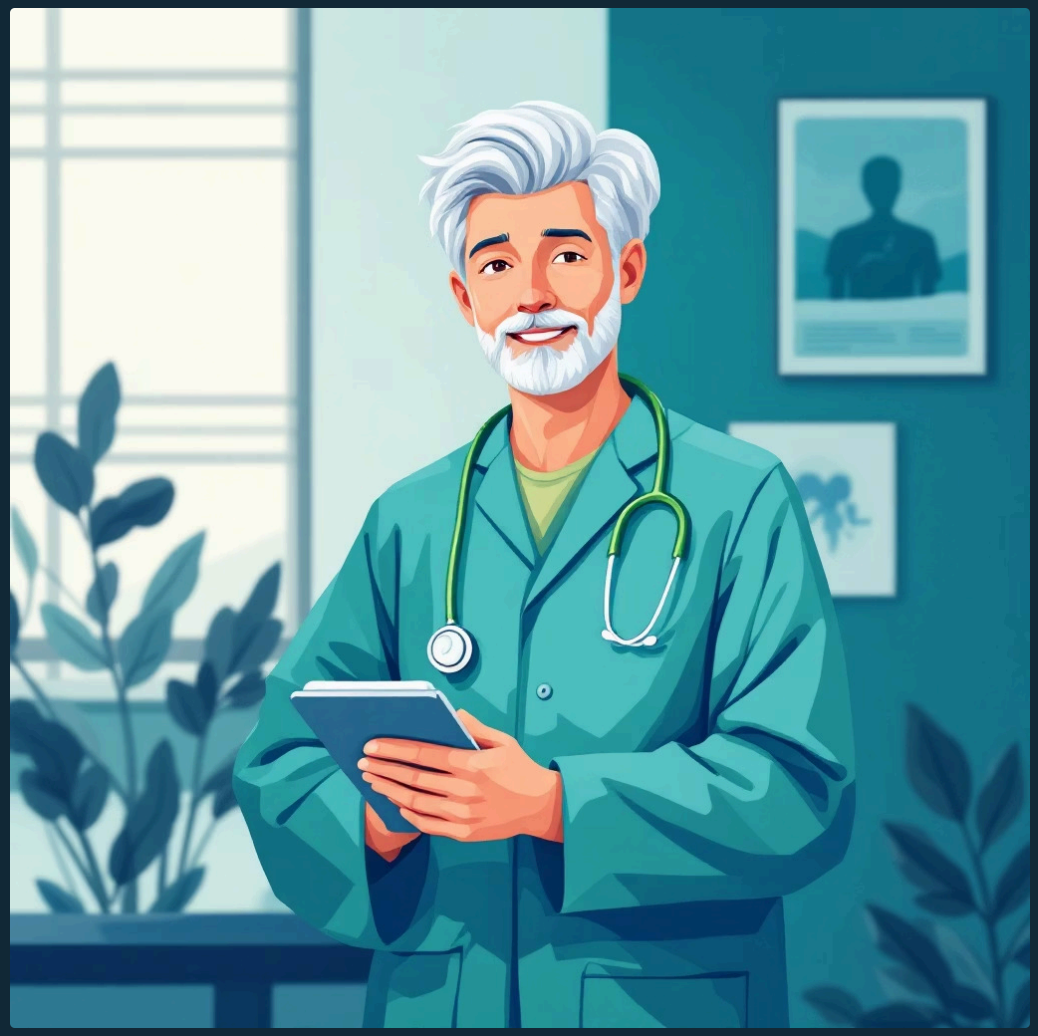
What AI models achieve in identifying respiratory conditions

Early detection is critical for saving young lives, but families face barriers: subjective clinical auscultation, limited access to specialists, and a complete absence of reliable home monitoring tools. Traditional methods depend heavily on clinical expertise that isn't always available when symptoms first appear.

Why an AI Stethoscope?

The Problem

Traditional stethoscope examinations are inherently subjective and require years of clinical training to interpret accurately. Parents and caregivers have no way to monitor subtle changes in lung sounds at home, leading to delayed diagnosis and potentially dangerous outcomes.



The Solution

AI-powered analysis enables objective, automated interpretation of respiratory sounds using just a mobile phone microphone. This democratizes expert-level lung sound analysis, putting clinical-grade assessment directly in the hands of families when they need it most.

How Shishuvani Works

Audio Recording

Place your mobile phone microphone on the child's chest to capture high-quality lung sounds in seconds—no special equipment needed.

Dataset Comparison

The app compares recorded audio against an extensive pediatric respiratory sound dataset containing thousands of labeled samples: pneumonia, asthma, cough, wheeze, and normal breathing patterns.

AI Analysis

Advanced machine learning models—convolutional and recurrent neural networks trained specifically on pediatric sounds—analyze patterns invisible to the human ear.

Instant Feedback

Within moments, receive objective feedback on likely respiratory conditions with confidence scores, empowering informed healthcare decisions.

Evidence from Recent Research

1

Wheezing Detection Breakthrough

AI models detect wheezing in children with greater than 90% sensitivity and specificity, matching or exceeding expert clinician performance (Park et al., 2025). This represents a quantum leap in diagnostic accuracy for pediatric respiratory conditions.

2

Home Asthma Monitoring Success

AI-aided stethoscopes significantly improve home asthma monitoring capabilities, especially for children under age 5 where symptoms are hardest to assess (Respiratory Therapy, 2023). Parents report increased confidence and earlier intervention.

3

Real-World Pneumonia Detection

Studies demonstrate strong agreement between AI-powered pediatric pneumonia detection and expert clinician diagnosis in real-world settings (Hoekstra et al., 2025), validating the technology's clinical reliability and practical applicability.

Current Focus: Pediatric Pneumonia & Asthma

Pneumonia Detection

Pneumonia is responsible for the majority of respiratory deaths in children worldwide. Early detection through AI-powered analysis can dramatically improve survival rates by enabling timely medical intervention before conditions become critical.

Asthma Monitoring

Asthma monitoring in young children presents unique challenges—symptoms are inconsistent, communication is limited, and triggers vary. Shishuvani's AI stethoscope provides objective symptom tracking that helps parents and doctors manage this chronic condition more effectively.

Our target population: Children aged 0-6 years represent the most vulnerable group for respiratory illness. These early years are when accurate diagnosis matters most, yet traditional assessment methods are least reliable.

Technical Highlights

Advanced Audio Processing

Utilizes Mel-frequency cepstral coefficients (MFCCs) and spectrogram analysis to extract clinically relevant acoustic features from recorded lung sounds, identifying patterns imperceptible to human hearing.

Deep Learning Architecture

Employs sophisticated convolutional neural networks combined with recurrent layers specifically designed for temporal sound classification, trained on thousands of pediatric respiratory sound samples.

Noise Reduction

Intelligent filtering algorithms eliminate background noise, movement artifacts, and environmental interference to ensure reliable analysis even in non-clinical home environments.

Secure Cloud Processing

Cloud-based AI processing enables continuous model improvements while maintaining strict data privacy standards and HIPAA compliance for protected health information.

Future Scope: Heart Sound & Vital Signs Integration

Expanding Beyond Respiratory Health

While our current focus addresses the urgent need for pediatric respiratory monitoring, Shishuvani's roadmap includes comprehensive cardiopulmonary screening capabilities:

01

Heart Abnormality Detection

Expansion to detect cardiac conditions such as congestive heart failure (CHF), murmurs, and arrhythmias through advanced heart sound analysis.

02

Vital Signs Monitoring

Integration of heart rate and respiratory rate monitoring using mobile sensors and video analysis for complete vital sign tracking.

03

Comprehensive Screening

A single app providing complete pediatric cardiopulmonary screening—combining lung sounds, heart sounds, and vital signs in one powerful platform.

Vision for Tomorrow: Transform Shishuvani into a comprehensive pediatric health monitoring ecosystem that detects both respiratory and cardiac conditions early, when intervention is most effective.

Transforming Child Health Monitoring

Empowering Parents

Provides families with easy, objective respiratory health checks at home—turning anxiety into actionable insights and giving parents confidence in their health decisions.

Supporting Telemedicine

Enables sharing of AI-analyzed lung sounds with clinicians remotely, facilitating better virtual consultations and expert second opinions without geographic barriers.

Reducing Hospital Burden

Decreases unnecessary emergency room visits through early detection and monitoring while enabling timely interventions when truly needed.

Bridging Access Gaps

Brings expert-level diagnostic capability to underserved regions where pediatric specialists are scarce, democratizing quality healthcare access worldwide.

Join Us in Revolutioni zing Pediatric Care

Our Mission

Shishuvani harnesses the power of artificial intelligence to save young lives through early respiratory disease detection. We're transforming how families monitor their children's health—making expert lung sound analysis accessible anytime, anywhere.

The Impact

Together, we can build a healthier future for children worldwide. Every child deserves access to clinical-grade health monitoring, regardless of geography or economic status. Let's make that vision a reality.

Be Part of the Solution

Join us in creating a world where no child's respiratory condition goes undetected. Where parents have the tools they need. Where AI serves humanity's most precious population.