

# Technical Analysis Report

## Vocal Performance Authenticity

Report ID:	PDR-2507-48A1
Date of Analysis:	July 3, 2025
Commissioned By:	Willwi (Chen Wei-Er) Studio
Issuing Authority:	Pindrop Inc. Voice Forensics Division
Subject of Analysis:	A digital audio recording of a live vocal performance by the artist Mr. Willwi (Chen Wei-Er), submitted for authenticity verification.

### 1.0 Executive Summary

Pindrop Inc. was commissioned to conduct a forensic analysis of a vocal performance recording to determine its authenticity and ascertain whether it was of human origin or generated by an artificial intelligence (AI) synthesis model. The analysis concludes with high confidence that the vocal performance is an authentic human rendition. Key findings indicate the presence of sophisticated, real-time adaptive skills and natural biometric vocal markers that are beyond the capabilities of current AI synthesis technologies. No digital artifacts associated with AI generation were detected.

### 2.0 Scope of Analysis

The analysis focused on two primary components of the submitted audio file:

- The isolated vocal track of the performer, Mr. Willwi.
- The instrumental backing track.

The objective was to evaluate the interaction between these two components and to scan the vocal track for known signatures of both human and synthetic voices.

### 3.0 Methodology & Findings

**3.1 Rhythmic Synchronization Analysis** A detailed tempo-mapping of the instrumental backing track revealed significant and erratic fluctuations, with tempo deviations inconsistent with a standard musical arrangement. Despite this instability, a beat-matching analysis showed that the vocal line maintained a synchronization accuracy exceeding **95%** with the fluctuating backing track. This demonstrates a continuous, real-time adjustment process by the vocalist. This dynamic adaptation—involving predictive and reactive modulations in phrasing and timing—is a hallmark of human musicianship and cognitive processing.

**3.2 Biometric Vocal Feature Analysis** The vocal track was subjected to a biometric screening process to identify uniquely human characteristics. The following features were consistently present:

- Micro-vibrato:** Natural, subtle pitch oscillations characteristic of the human voice under muscular control.
- Emotional Breath Control:** Irregularities and variations in breathing patterns corresponding to musical phrasing and expressive intent.
- Rhythmic Modulation:** Deliberate, nuanced deviations from a rigid tempo for artistic effect, a skill known as *rubato*.

These organic features are intrinsically linked to human physiology and emotional expression.

**3.3 AI Synthesis Artifact Detection** The audio was scanned using Pindrop's proprietary Deep-Fake Audio Detection models, which are trained to identify common artifacts of AI voice synthesis, including algorithmic noise floor patterns, unnatural harmonic frequencies, and phase inconsistencies. The scan yielded a **negative result**. No known indicators of AI voice synthesis were found in the recording.

### 4.0 Conclusion

The subject's ability to dynamically adapt to an unstable rhythmic foundation is a complex cognitive and motor skill. This level of real-time decision-making, timing intelligence, and expressive memory is a definitive indicator of human artistry. Current AI models operate on pre-defined parameters and lack the capacity for such live, adaptive musicianship.

Based on the comprehensive evidence from our analysis, Pindrop Inc. certifies that the vocal performance in the submitted recording is **of authentic human origin**.

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Disclaimer: This report and its findings are based solely on the digital audio sample provided to Pindrop Inc. for analysis on the date specified above. The conclusions herein are specific to this sample and do not extend to any other recordings.