FrameFix

Smart audio recovery

powered by

CandyVoice
GLOBAL VOICE SOLUTIONS

Real-Time Audio Frame Reconstruction for Mission-Critical Communications

FrameFix is an advanced technology designed to maintain speech intelligibility under severe packet loss conditions.

It ensures communication continuity even in the presence of radio interference, jamming, or unstable networks.

Maintaining intelligibility in degraded communication environments

Context

- Voice communications over radio or IP networks are subject to packet loss
- Tactical or degraded environments (RF interference, jamming, limited coverage) exacerbate these losses
- Frame loss significantly degrades speech intelligibility and comprehension
- Conventional Packet Loss Concealment (PLC) solutions remain limited when facing prolonged losses

Definition

Audio frame recovery (Packet Loss Concealment) consists of reconstructing missing speech signal segments during packet loss using advanced interpolation and speech signal reconstruction techniques, in order to preserve communication continuity and intelligibility.

Innovation & Performance

Core Technology

- Reconstruction of lost audio sequences of up to 12 consecutive packets (10 ms each), corresponding to up to 120 ms of continuous reconstructed speech
- Advanced speech reconstruction based on signal interpolation
- Preservation of temporal and spectral coherence of the reconstructed signal

Performance in Degraded Conditions

- Intelligibility maintained up to 50% packet loss
- Real-time reconstruction with controlled latency (~140 ms)
- Resilience to RF/EM interference and electromagnetic jamming
- Robust operation in degraded environments (unstable networks, low coverage)
- Reduction of ASR error rate (WER reduced by a factor of 2) under high packet loss conditions (~50%)

Démonstration : www.candyvoice.com

Use Cases

Defence

- Maintaining radio communications in jammed environments
- Resilient communications under packet loss conditions

Public Safety

- Continuity of emergency communications in low coverage areas
- Reliable exchanges under degraded network conditions

Telecom / MCX

- Improved VoIP communication quality
- Reduced impact of packet loss on critical networks

Integration & Deployment

- Signal-level processing after vocoder decoding (post-vocoder)
- Independent of vocoder type (AMR, MELPe, TETRA, Opus…)
- Independent of transport layer (RTP, VoIP, radio, MCX)
- Integration without modification of existing protocols
- Embedded (edge) execution with no cloud dependency
- Compatible with embedded architectures (DSP, ARM, x86)
- Deployment in secure containers (Docker)
- Minimal impact on existing systems

Why CandyVoice?

- Contribution to military radio communication programs (TRT, Thales…)
- Previous eligibility for classified defence projects (France / NATO)
- Expertise in real-time voice DSP
- Experience with secure communication architectures
- Rapid integration into existing systems

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