

Voice Clarity in Extreme Acoustic Environments

Advanced AI-powered noise reduction technology designed for mission-critical environments.

NoizzOff restores intelligible speech in extreme acoustic conditions without altering voice identity, combining controlled latency with fully embedded execution.

Real-Time Speech Intelligibility for Mission-Critical Communications

► Operational Benefits

- Effectively suppresses extreme noise (engines, rotors, wind, industrial environments)
- Isolates the voice of interest in noisy, multi-speaker environments
- Preserves voice timbre, speaker identity and speech prosodic characteristics
- Enhances speech intelligibility, improving comprehension, coordination and decision-making
- Reduces cognitive fatigue and listening effort during prolonged use
- Fully local execution (Edge AI) with no dependency on network connectivity or cloud services
- Designed for mission-critical communications

► Target Applications

- Tactical radios and communication systems
- Tactical headsets, earpieces and audio systems
- Armored vehicles, aircraft, naval platforms and command posts
- 3GPP Mission Critical (MCX) terminals
- Public safety communications
- Rugged smartphones and field equipment
- Industrial environments and hazardous sites

► Proven Real-Time AI Performance

- **>32 dB** adaptive noise reduction
- Up to **+14.3 dB** speech intelligibility improvement (MOS-equivalent)
- Only **16 ms** end-to-end latency
- Real-time processing with **5 ms** audio frames
- AI inference on the **Alif E3 NPU (400 MHz): 1.66 ms + 0.67 ms × N per block of N frames (2.33 ms for a single 5 ms frame)**
- Compact **330K-parameter** neural network
- Designed for low-power ARM processors with NPUs
- **Single-microphone** architecture for easy integration
- Optimized for mission-critical voice communications (**16 kHz**)
- Robust AGC with up to **+18 dB** gain for highly dynamic acoustic environments

► Integration Options

- Embedded deployment (ARM with NPU)
- Secure local execution (Edge AI / On-device AI)
- Into tactical radios and communication terminals
- Into communication infrastructures and gateways
- Server deployment using Docker containers
- APIs and SDKs for cross-platform integration

► Why CandyVoice

- European sovereign deep-tech company
- Expertise in digital speech processing and embedded artificial intelligence
- Proprietary technologies dedicated to enhancing speech intelligibility
- Edge AI technologies running entirely on-device, with no dependency on cloud services or network connectivity
- Trained on proprietary datasets collected from real-world operational environments

► Selected Defence Experience

- Contribution to military radio communication programs (TRT, Thales...)
- Expertise in tactical communications and embedded systems
- Proven expertise in mission-critical and secure communication architectures
- Experience with classified defense projects under French "Secret Défense" and « NATO Secret » security clearances

► Ideal Use Cases

- **Defence:** maintaining intelligible voice communications in extreme operational conditions (high-noise environments)
- **Public Safety:** improving speech intelligibility for firefighters, law enforcement agencies, emergency services, and command centers
- **Critical Infrastructure:** ensuring reliable voice communications in noisy industrial environments

► Performance demo: www.candyvoice.com