

LoLa overview

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Generic overview of LoLa technology

- LoLa is developed by Conservatorio Tartini Trieste and GARR (and inside SWING project)
- Requires installation on a Windows PC with some specialised hardware
- Requires an high performance network service (usually the Research and Education networks)
- The software license is available for free for all academic and research no profit uses
- It is peer to peer, does not have «servers»
- Can connect 2 or 3 sites
- Chat, advanced monitoring system, testing and debugging tools, Address book,...
- Easy user interface
- Upcoming features: QoS, sensors integration, teaching assistance tools,...



How LoLa looks like



LoLa equipment for Performing Arts

- An hi end gaming style PC with Intel i7 or i9 with 8+ cores, GPU, Professional Audio Card, fast video monitors...
- A professional full audio gear (microphones, audio monitors, analog or digital mixers...)
- Very fast machine vision specialised video cameras

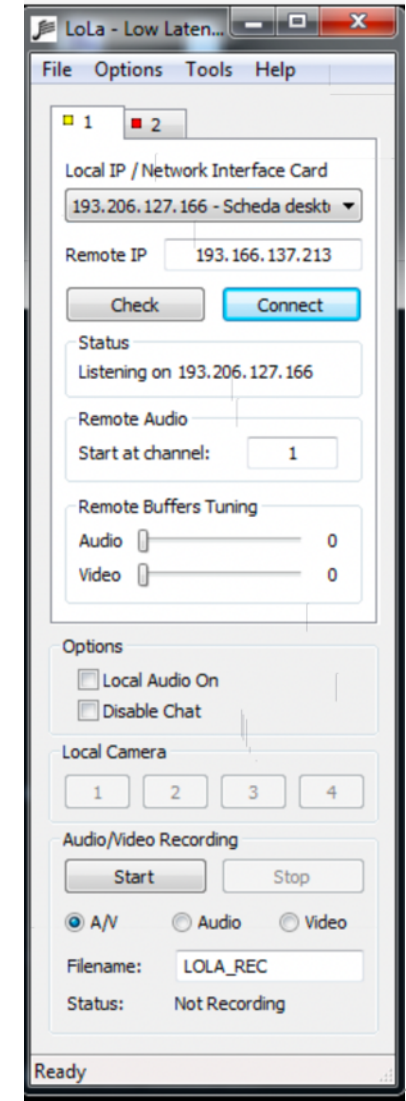
See https://lola.conts.it/downloads/LOLA_HARDWARE_LIST.pdf

- Symmetric (upload and download) network service at at least 100Mbps (1Gbps suggested)
- Guaranteed network bandwidth, and a low latency network service ($\sim 1\text{ms}$ per 100Km)

A less hardware demanding version for smaller installations is under test, but home asymmetric and poor quality networks cannot make it.

LoLa **is built** for Performing Arts!

- FullHD video resolution (up to 2K) **up to 90 frames** per second
- Supports up to **4 video cameras** per site
- Multiple video monitors
- **10 (20) uncompressed audio channels** at 44.1 or 48 Khz
- **Fine audio and video tuning and audio/video calibrating tools**
- Internal processing **latency less than 5ms**
- **Real time live recording (and playback)**
- On academic network, you can play together «naturally» up to 4000km
- There is **no echo even at 30000km**
- **Control console separated from users' presenting interface**

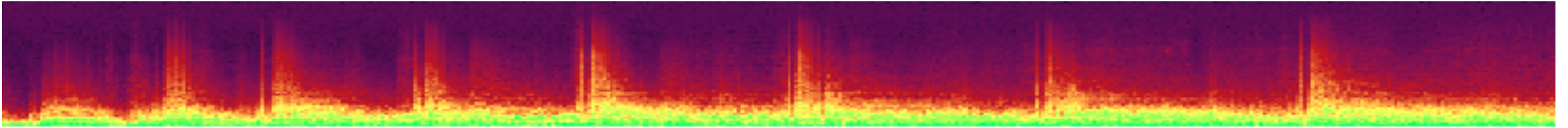


What users see from LoLa in action

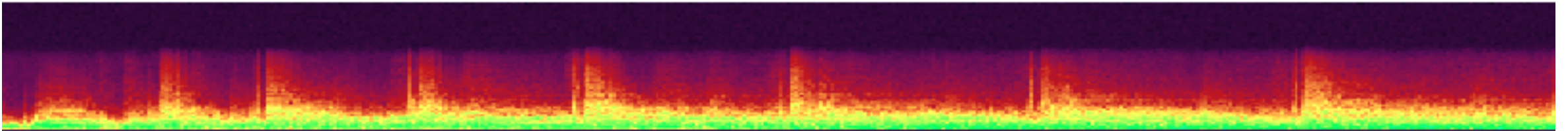


Audio Comparison Spectrograms

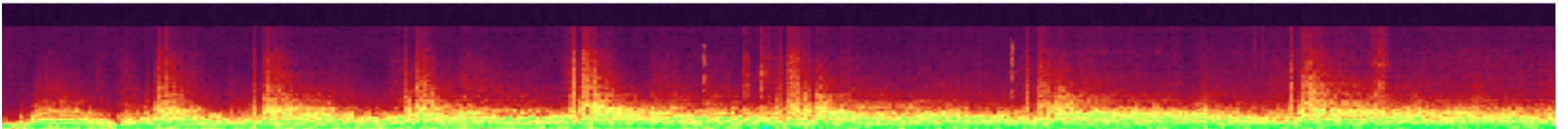
Original uncompressed audio



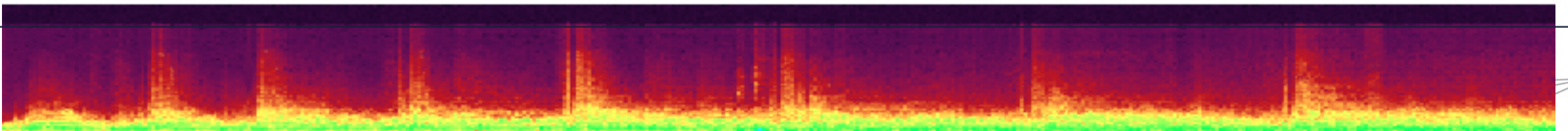
Zoom standard audio



Zoom «original sound» on



eduMEET (not yet HiFi mode) Opus audio



Scenarios for LoLa use

- Teaching from / to institutions (where good network connections are available)
- Masterclasses, Auditions, Regular teaching sessions, virtual mobility
- Live Performances, Live Concerts with artists located in different places
- Distributed productions from different studios
- Artists can play / act together in real time
- Ensures privacy
- ... it also permit «distancing» for ensemble music inside the same institution
- Integration with other real time systems for complex productions

*Rome, Prague, Barcelona, Linz
LoLa, MVTP, Ultragrid, all*



Where to learn more about LoLa and training

General information:

- <https://lola.conts.it>
- Lola-project@garr.it
- <https://www.garr.it/en/communities/music-and-art/lola>
- <https://www.swing-project.eu>

Download:

- Write to lola-project@garr.it to get a license and access to project site

Videos:

- <https://www.garr.tv> and insert LoLa in the «search» field