

# Ultra low latency music performance over the Internet

After social distancing measures have been enforced, music schools, conservatoires, radio and tv broadcasters, Internet media channels, and musicians too, felt the urgent need to be able to play music together and live, staying each one at his/her place. They tried to use many of the available videoconferencing software, but were disappointed by the artifact that such software introduces to favour speech intelligibility over high fidelity audio. In addition, such systems do not manage collaboration and synchronization between multiple flows and cannot enable any kind of real time performance for a passionate audience (i.e., passive users).



In this context we are looking for master thesis students interested in investigating, implementing, and evaluating how to build a software prototype for remote music teaching with high fidelity audio and to extend this implementation in order to allow musicians to play together through the network with a synchronized output, thus overcoming the quality and synchronization problems of the videoconferencing platforms.

The software prototype will be developed as a web application that runs natively in the browser in order to be easily accessible by anyone on every software platform (pc, laptop, handheld, tablet). A first prototype of the software that needs further development is available on [Github Jacktrip-WebRTC](#).

The activity can be carried out without being physically present on a day-to-day basis at the Politecnico.

Tags: multimedia, networking, audio, web technologies

Thesis type: applied research, software development

Additional references:

- [WebRTC examples](#)
- [RTCDataChannel](#)

Requirements:

- Knowledge of web and Javascript programming
- [optional] Attended the "Elaborazione e trasmissione di informazioni multimediali" (ETIM, Processing and Transmission of Multimedia Signals) or "Internet Streaming" or "Elaborazione dell'audio digitale" (EAD, Digital audio processing) class

If interested, please submit your CV and statement of interest to: [antonio.servetti@polito.it](mailto:antonio.servetti@polito.it)

