

Konstantinos Tsioutas | CV

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PhD Candidate, Athens University of Business and Economics and IT Administrator of the digital e-learning platform of the postgraduate course of the Ionian University's Audio and Visual Arts Department, website: v-class.avarts.ionio.gr

Future Research Goals and Previous Work

- My main goal is to conduct research on technologies that can operate over high speed public infrastructures in order to build real time music performance and collaborative systems. Such systems can be implemented over GRNET infrastructure.
- Additionally, a certain goal is to design questionnaires that the participants will answer in order to explore human reactions when real time music collaboration is problematic. The goal is to lead to conclusions about how latency and audio quality affects musical performance in terms of psychoacoustics and perceptual hearing. Perceptual Evaluation of Audio Quality (PEAQ) is a tool that I intend to use extendedly in my research. Also a sufficient number of sessions have to be conducted.
- I am currently working using the GRNET infrastructure, maintaining a server at OKEANOS project and I am developing an application interface for streaming audio towards the server and back for real time music performance of remote musicians who will perform music over GRNET. I am using Gstreamer along with SDK frameworks at the server and client sides to conduct the sessions. I am currently streaming audio from the client Linux machine I hold at the Mobile Multimedia Laboratory placed at the Trias Street towards the relay server and back and I am calculating audio delay using uncompressed audio with various sample rates and compression ratios as well as opus audio codec. The NMP Server can be found here (web interface)
- I have already conducted Network Musical Performance sessions (October 2017) where two music bands with three members each performed music over the Ionian University fast Ethernet network. The delay results were presented as a talk at the Gstreamer Conference in Prague in October 2017. A short preview of the jazz session follows NMP - jazz session and the traditional session here NMP - traditional session
- A proposal for a paper with title "Network Music Performance : A Case Study using Gstreamer Open Framework" has been submitted at the AES MILAN 2018 Conference, which was accepted as an engineering briefing and the final manuscript will be also submitted.
- At the same time I am studying on the WebRTC project in order to use it for Network Music Performance sessions, as a case study, which will be held at the GUNET infrastructure and musicians from other Universities will participate.

Employment

- **Traditional Music Department , Technological and Educational Institute of Epirus**
Teacher 2013–2018
I have been teaching Music Programming Software Courses as well as Courses of Sound Engineering at the department of traditional music. I also supervise students in their final dissertations. I am also the technical manager of the Recording Studio of the department where I have set up all the available sound equipment including a Digital Mixing Console, a Mac Computer , one Sound Card with 12 inputs and outputs , 12 preamplifier and patch bays to route dynamically audio towards many directions.
- **Technical Schools of Greek Organization of Employment**
Teacher 2005–2018
I have been teaching analog and digital electronics, networking and telecommunications theory.
- **Private Institute for Vocational Training DELTA**
Teacher 2010–2018
I have been teaching analog and digital electronics, networking and telecommunications theory.
- **Private Institute for Vocational Training XINI**
Teacher 2005-2010
I was teaching analog and digital electronics, networking and telecommunications theory.

Education

Academic Qualifications.....

- **Athens University of Business and Economics**
PhD Candidate, Computer Science Department 2014-2018
Thesis: Improving the Quality of Service for Network Musical Performance to produce live music concerts through the Internet
Supervisor : George Xylomenos
- **National University of Athens**
MSc Radio Electronics and Telecommunications, Physics and Informatics Department 2008–2012
- **Ionian University**
MSc Audio Art and Technology, Music Department 2006–2008
- **ASPETE University**
Electronics Engineering Diploma, Electronics Engineering Department 1995–2002

Notable Projects.....

- **Google Bike - May 2017 'Interactive Video Installation'**
This project was presented at the Athens Concert Hall during the 11th Audiovisual Arts Festival of Audio Visual Arts Department of the Ionian University. A common bicycle with magnetic sensors was driving an Arduino board. Each time a user was riding the bike he could navigate around Google Earth. You can watch a short preview here [Google Bike Project](#)
- **Bike in Corfu - May 2016 'Interactive Video Installation'**
This project was presented at the 10th Audiovisual Arts Festival of Audio Visual Arts Department of the Ionian University. A common bicycle with magnetic sensors was driving an Arduino board. Each time a user was riding the bike a short video movie of the streets of Corfu was rolling. The faster the rider was biking the faster was the video was rolling.

- **A study on the techniques of capturing and amplifying the sound of the Greek traditional instrument bouzouki using various microphones and sensors - June 2013** *'Final Dissertation MSc Radio Electronics and Informatics'*

This project was my final dissertation for the MSc Radio Electronics and Telecommunications supervised by Alexandros Eleftheriadis , professor of Informatics Department of the National University of Athens. I recorded three octaves of clean notes from bouzouki instrument using a number of condenser microphones. I used Mat lab tools to extract spectrum analysis of the notes from each microphone and this led to significant conclusions about the acoustics of the instrument as well as the frequency response of the microphones used.

- **Buggs - August 2008** *'Interactive Sound Installation'*

This project was my final thesis for the MSc Audio Arts and Technologies supervised by Timothy Ward, professor of the MSc. The installation was held at the exhibition of a well known artist in the city of Corfu. Four hidden microphones were recording the voices of the visitors of the exhibition. Real Time audio processing in terms of audio filtering and re-sampling using Max Msp was taking place and the final audio signal was fed into six loud speakers causing visitors to feel strange. Also four touch sensors were placed in the room so visitors could interact with the produced sound. You can watch a short preview here [interactive sound installation](#)

Technical skills

- **Operating Systems:** MS OS (confident), Unix OS (confident), OSX (confident)
- **Programming Languages:** Intermediate in: C, Matlab, Arduino, Processing, TeX
Also basic ability with: Assembly, VHDL, Java.
- **Web Programming Languages:** HTML(Intermediate), Mysql(beginner)
- **API's:** Gstreamer Open Framework (can deal with), ALSA (Advanced Linux Sound Architecture)(can deal with)
- **Software Skills:** Multisim (Advanced), LTspice (Intermediate), LabView (Intermediate), Most MS Office products (Advanced).
- **Server - Client Technologies:** Apache web server, Nginx web server, SSH, FTP, Bash Script writing , Bigbluebutton project (Administrator).
- **Web Design Tools:** Joomla (confident), Wordpress (confident)
- **Network Simulators and Monitoring Tools:** Wireshark, Cisco Packet Tracer, Omnet ++, Nagios, Bmon etc.
- **Audio Production and Sound Design Software:** Very good knowledge of: Nuendo, WaveLAB, Audacity, MaxMsp, Pure Data, SuperCollider.
- **Arduino and Raspberry Pi Projects:** Very good knowledge of programming and designing circuits on arduino and raspberry pi boards.
- **Sound Engineering Skills:** Very confident use of: Analog and Digital Mixing Consoles, Compressors , Effects, EQ's Microphones, Loud Speakers, Connections and final mixing.
- **Other:** Good soldering and capable of electronic circuit troubleshooting. Excellent use of electronic Lab instruments.
- **General Business Skills:** Good presentation skills, Works well in a team. Passionate, fully communicative and capable of leading groups of students.

