Davide
Lionetti

Audio software Engineer

ABOUT ME

I am resilient, constant, patient, cheerfull, and positive. I love the collaboration in developing innovative and cutting-edge audio applications. I am a life-long, passionate musician with the aim to merge my digital signal processing studies with my creative side.
Topics of interest: VST design, Music information retrieval, and Deep Learning-aided Human-computer Interaction, which I have been working in several projects of my Portfolio (2nd page).

EDUCATION

Master of Science

⦾ Politecnico di Milano, Italy   📅 2020 - current

Music & Acoustic Engineering

- Multimedia signal processing, Sound processing, analysis and synthesis, electronic and eletroacoustic, computer graphic
- Creative programming through Ai and deep learning, computer music software design, Current grade average: 27.6/30

Bachelor of Science

⦾ University of Padua, Italy   📅 2016 - 2019

Information Technologies Engineering

- Mathematic, physics, probability calculation and combinatorial analysis.
- Object-oriented programming, standard network protocols, software and relational database design, circuit theory and microelectronics, artificial intelligence.
- Programming languages Java, Python, SQL.

High school diploma

⦾ G. Marconi Institute, Sassari, italy   📅 2010 - 2015

Science-oriented high school

JOB EXPERIENCE

Music Engineer

⦾ LWT3, Milan, Italy   📅 Nov 2022 - current

Internship for my master's degree final dissertation. Focus on the development of an original protocol to apply the sEMG signals to performing arts, written on Python. I'm designing a novel interaction method to control the guitar sound through musician's muscole signals, using the LWT3's wearable sensors.

Main field: Human-computer interaction, Digital signal processing, Biosignal analysis.

Barman and Commis waiter

⦾ Bill's Restaurant, Cambridge, Uk   📅 2019 - 2020

- Management skills: teamwork to guarantee the best experience for the customers.
- Mastery of the English language gained from continuous interaction with native speakers.

CONTACT ME

📍 Milan, Italy

✉ davide.lionetti.eng@gmail.com

💻 https://github.com/EllDy96

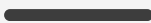in https://www.linkedin.com /in/davide-lionetti/
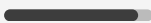
SKILLS

Programming libraries/software

NumPy, Librosa, Scikit-learn, TensorFlow, Keras, Git, JUCE, Vulkan, Visual Studio, Ableton, MAX MSP, Windows OS

Primary fields of study

Computer music, DSP, Music info retrival, AI & Deep learning, Sound Analysis/synthesis, Integrated electronic circuit, Computational Creativity
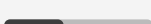
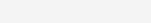**Languages**

Italian
English
TOEIC: 890/990. September 2020.

PROGRAMMING

Python

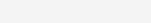HTML/CSS/Js

Java

C++

Supercollider

Matlab

Latex

PORTFOLIO

Handmonizer: An Artist-Oriented Vocal Improvization Tool
📅 Apr 2020 - Jul 2022

Music Interaction design
Hand gesture recognition
Human-computer interaction
Digital musical instrument
Supercollider, JS, ml5, MIDI, OSC.

📍 Politecnico di Milano, Italy

🖥 https://github.com/EllDy96/Handmonizer

The Handmonizer is an unusual artist-oriented harmonizer, tailored to the needs of a specific artist the jazz singer Maria Pia de Vito. The handmonizer is a vocal harmonizer which changes its setting using hand motion recognition. The user can change the harmonic patterns by simply moving their hand in front of a webcam while singing. Please follow the link for the full documentation and a video demostraction.

3Dreams: an artistic VR Experience
📅 Dec 2021 - Feb 2022

Music emotion recognition,
Creative programming
AI, Python, JS, MIR
Virtual Reality.
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📍 Politecnico di Milano, Italy

🖥 https://github.com/EllDy96/3Dreams

3Dreams is a New media art application that aims to enhance the music listening experience by giving shapes and colors to the emotional contour conveyed by one music track selected by the user, exploiting the power of a deep learning network. It is a VR experience that immerses the user in a dreamlike virtual 3D environment where the music emotions are reflected in real-time through the changes of the environment.

The Handy fm synthesizer
📅 May 2021 - Jun 2021

FM Sound Synthesis
Hand gesture recognition
Supercollider, Animation design
JS, P5.js, MIDI, OSC.

📍 Politecnico di Milano, Italy

🖥 https://github.com/EllDy96/ComputerMusicProjects/tree/Homework3

Implementation of an unusual FM synthesizer where the user can change the sound in real-time just by moving the hand in front of a webcam thanks to a hand motion recognition deep network, with dynamic parameters visualization through geometric and colorful animations. Please refer to the project URL for the complete documentation and a YouTube Video Demo.

Synesthetic
📅 Dec 2020 - Feb 2021

Web app , Rythmic analysis
Creative Programming
Beat tracking
Python, JS.

📍 Politecnico di Milano, Italy

🖥 https://github.com/EllDy96/Synesthetic

Synesthetic is a creative web application that creates in real time a Mondrian like dynamic visual representation of a musical piece to highlight its rythmic structure. The user is required to upload an audio file containing a rhythmic recording, e.g. a drum recording. A rhythmic analysis then is performed on the track, which separates the contributions of the different periodicities present in the rhythm, so that each periodicity can give a separate contribution to the visualization. This makes Synesthetic an informative tool for rhythm visualization

Elaboration of a Lead Sheet Dataset for Computational Creativity Systems.
📅 Aug 2019 - Sep 2019

Computational Creativity
Algorithmic composition
Markov chain, Python
Music21, MySQL.

📍 Padua University, Italy

🖥 https://github.com/EllDy96/AlgorithmicComposer

Bachelor thesis focused on the design of a computational creativity system for the automatic generation of monophonic melodies using a Markov chain. It works thanks to an initial music information retrieval step, which consisted of the elaboration of more than 1200 scores taken by the "Nottingham Dataset" (Irish set of popular music). I analyzed the corpus using Python's library Music21; then I designed a Markov chain to emulate the human process called "combinatorial creativity".
Thesis supervisor: Antonio Rodà.
Co-supervisor: Filippo Carnovallini.