



Become an orchestra composer using FOSS!

Lorenzo Miniero Music Production devroom @ FOSDEM February 1, 2026

Basically “Part 2.” of this presentation



FOSDEM'23



1

Become a rockstar using FOSS!
(Or at least use FOSS to write and share music for fun!)

Lorenzo Miniero
@ lminiero@fosstodon.org

FOSDEM 2023, Open Media devroom
4th February 2023, Brussels 🎉



https://archive.fosdem.org/2023/schedule/event/om_music/

Spoiler alert: not a composer either...



FOSDEM'23

Clickbait title alert: not a rockstar!



Lorenzo Miniero
@lminiero@fosstodon.org

I know one of them was me, so who was the other one?! #spotify
#november

LORENZO MINIERO HAD

2 listeners

The image shows a screenshot of a tweet from Lorenzo Miniero (@lminiero) on the Fosstodon social network. The tweet includes a screenshot of a Spotify stats card. The stats card shows the text "LORENZO MINIERO HAD" at the top, followed by a large orange "2 listeners". The tweet text above the card reads "I know one of them was me, so who was the other one?! #spotify #november". The Fosstodon logo is visible in the top right corner of the tweet card.



https://archive.fosdem.org/2023/schedule/event/om_music/

So who am I, then?



Lorenzo Miniero

- RTC developer (Janus/imquic)
- Hobbyist musician
- Love rock + orchestral!

Contacts and info

- fosdem@lminiero.it
- <https://fosstodon.org/@lminiero>
- <https://bsky.app/profile/lminiero.it>
- <https://music.lminiero.it>
- <https://video.lminiero.it>

Virtual Orchestration



- Scoring parts + Using virtual instruments = Orchestral sounds
 - A real orchestra can host up to 100 musicians
 - Even more instruments, spread in different sections
 - Each instrument can have a huge variety in tone and expressivity

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 - Much easier (and cheaper) to write a score and have your computer perform it
- Can sound more or less realistic
 - Quality of samples matters (some libraries are *expensive*) but is not enough
 - Proper arrangement can help make it sound more realistic, though
 - And yes, sometimes it is a bit of *smoke&mirrors* and/or *misdirection*

What can a real orchestra look like?

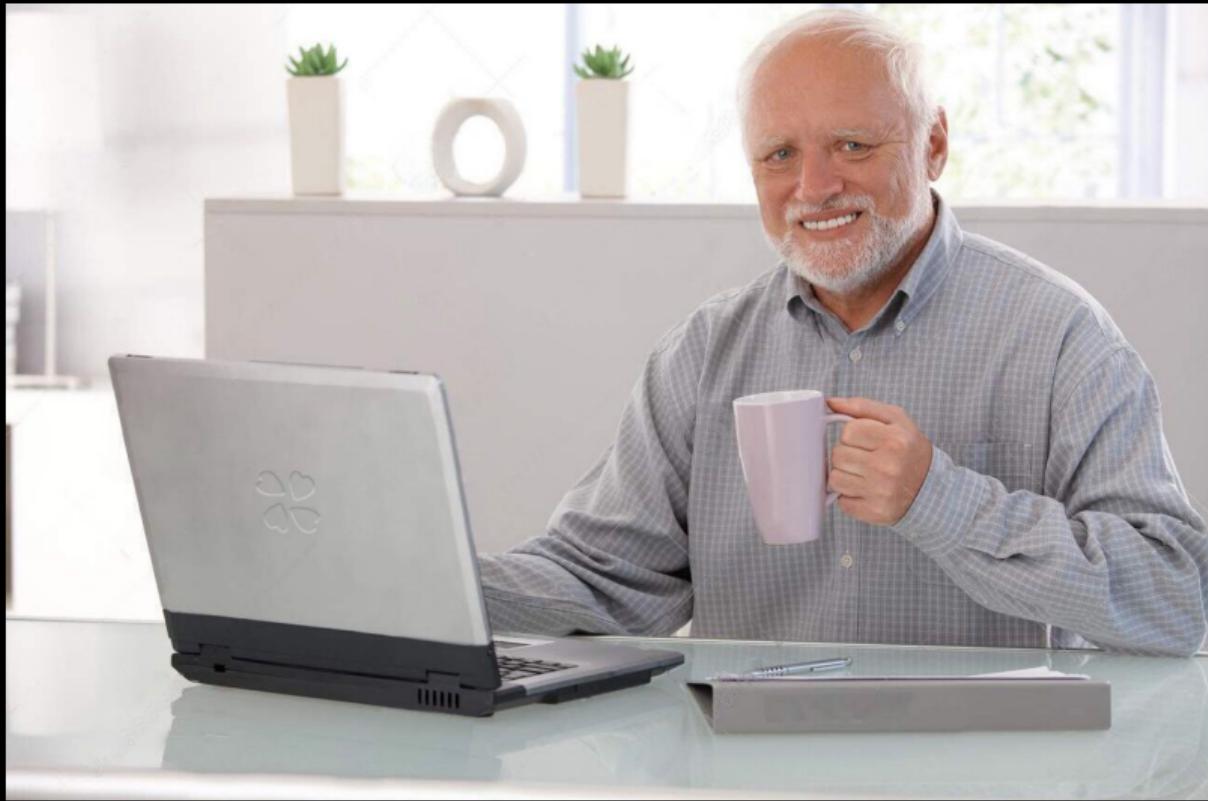


- Woodwinds
 - 2-4 flutes
 - 2-4 oboes
 - 2-4 clarinets
 - 2-4 bassoons
- Brass
 - 4-8 horns
 - 2-6 trumpets
 - 2-6 trombones
 - 1-2 tubas
- Percussions
 - 1 timpani + drums
 - 1 cymbals + more
- Keyboards
 - 0-1 piano
 - 0-1 organ and
 - 0-1 celesta
 - ...
- Strings
 - 16-18 1st violins
 - 14-16 2nd violins
 - 12-14 violas
 - 10-14 cellos
 - 8 double basses
 - 1-2 harps

From this...



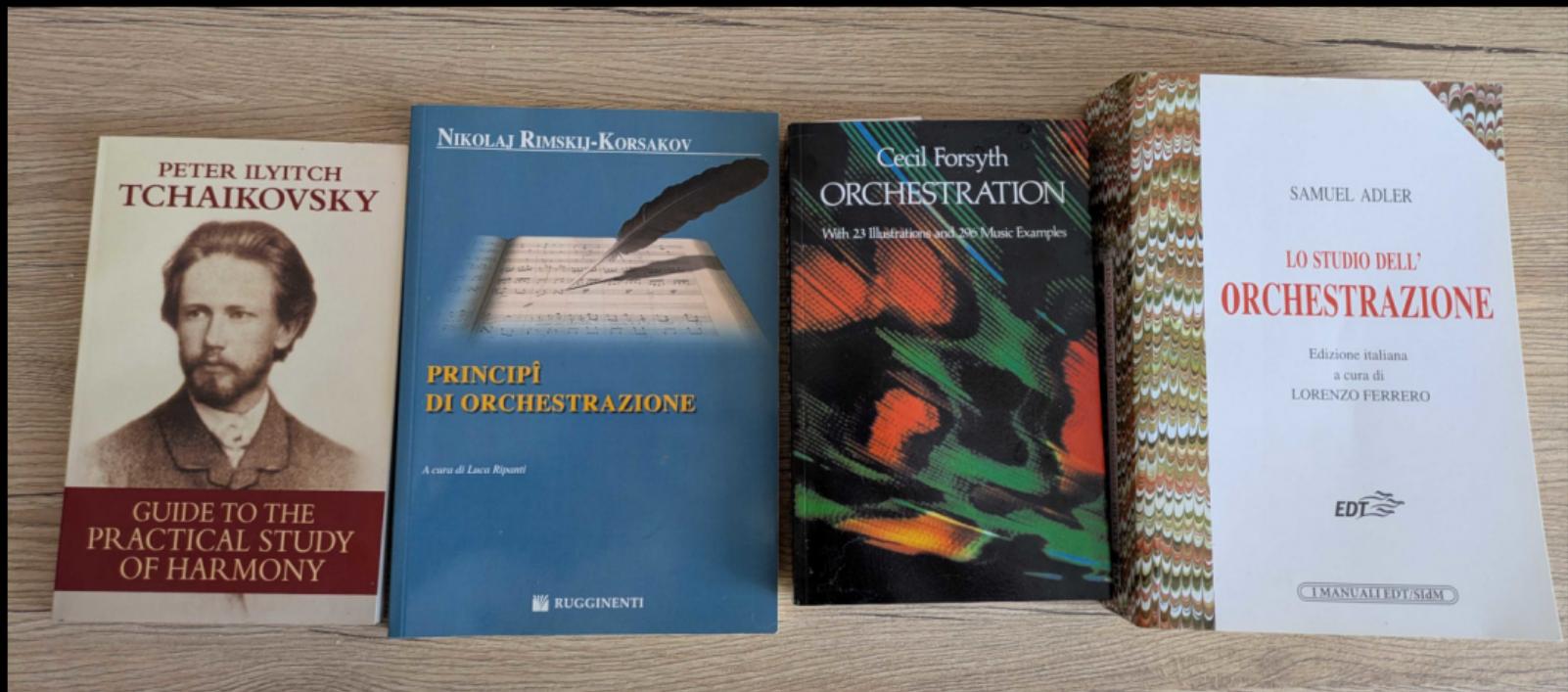
... to this!



Not a bad idea to do some homework



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First steps

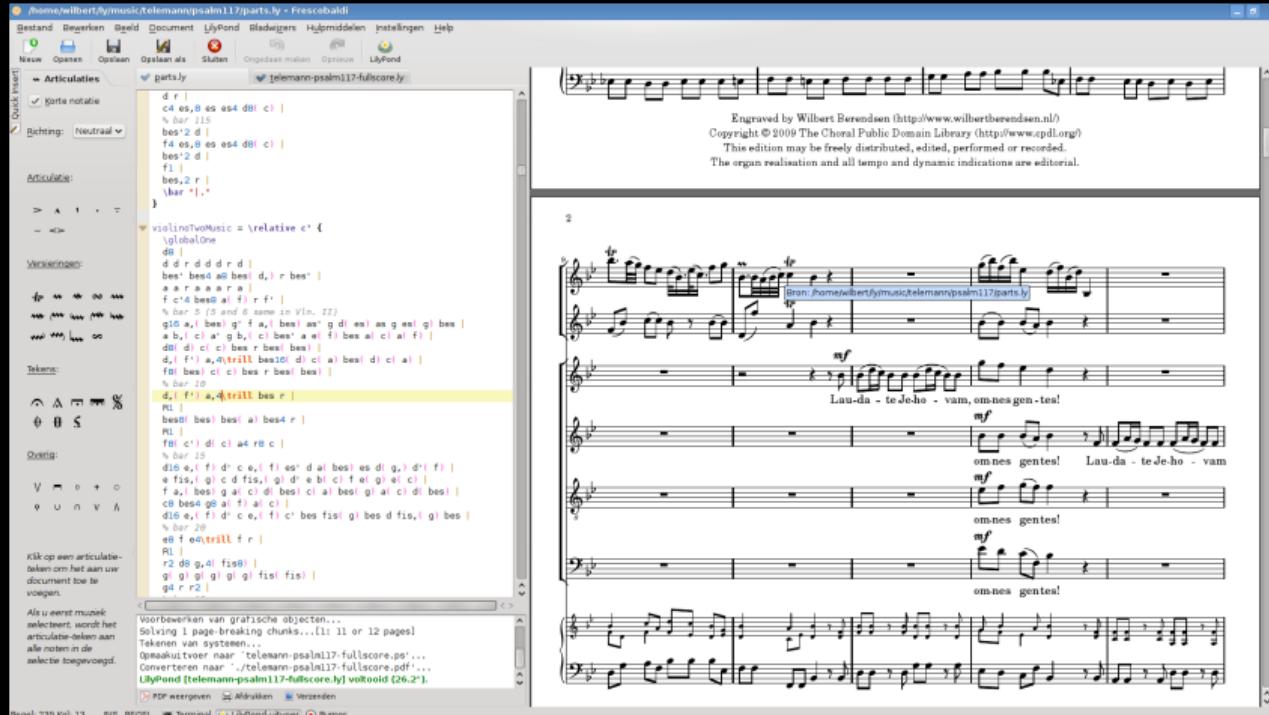


Linux Midi Orchestration

Peter Schaffter

<https://www.schaffter.ca/pdf/linux-midi-orchestration.pdf>

Trying to write a score



<https://lilypond.org/>

A simpler WYSIWYG approach: MuseScore



The screenshot shows the MuseScore application interface. The menu bar includes File, Edit, View, Add, Format, Tools, Plugins, and Help. The toolbar contains various icons for file operations and zoom. The main workspace displays a musical score for piano, consisting of two staves. The top staff starts with a treble clef, a key signature of B-flat major (two flats), and a 4/4 time signature. The dynamic is marked as *mp*. The bottom staff starts with a bass clef, a key signature of B-flat major, and a 4/4 time signature. The dynamic is marked as *più mosso*. The score includes several bar lines, some with repeat endings (e.g., 1, 2, 3). The tempo is indicated as *Andante con moto (♩ = 120)*. The dynamics *rit.* (ritardando) and *tempo primo* are also present. The Inspector panel on the right shows settings for the selected element, including visibility, automatic placement, and stacking order (set to 1200). The Segment panel shows settings for the current barline, including style (single barline) and span options. The Palettes panel on the left lists various musical elements like Clefs, Key Signatures, and Articulations, with an 'Add Palettes' button.

<https://musescore.org/>

Can't we get some better sounds?



- As we mentioned, virtual orchestration relies on virtual instruments
 - MuseScore uses a decent SoundFont, but it's not very realistic
 - Rather than synthetic sounds, why not use samples/libraries?

Can't we get some better sounds?



- As we mentioned, virtual orchestration relies on virtual instruments
 - MuseScore uses a decent SoundFont, but it's not very realistic
 - Rather than synthetic sounds, why not use samples/libraries?
- A ton of expensive libraries out there, but some good free ones too
 - BBC Symphony Orchestra Discover (VST/NKS)
 - <https://www.spitfireaudio.com/bbc-symphony-orchestra-discover>
 - Sonatina Symphonic Orchestra (SFZ)
 - <https://github.com/peastman/sso>
 - Versilian Studios Chamber Orchestra Community Edition (SFZ)
 - <https://versilian-studios.com/vsco-community/>
 - Virtual Playing Orchestra (SFZ)
 - <http://virtualplaying.com/virtual-playing-orchestra/>
 - Muse Sounds (??)
 - <https://www.musehub.com/muse-sounds>

Virtual Playing Orchestra



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- Scripts for different instruments in different sections
 - Woodwinds, brass, percussions, vocal, strings
 - Solo instruments vs. sections (e.g., flute vs flutes)
 - Samples for different articulations (e.g., staccato, tremolo, pizzicato, etc.)
 - Ability to switch attach and articulations (SFZ syntax, CC, keyswitching)

A VPO template for Ardour



- Excellent template for Ardour DAW by Michael Willis
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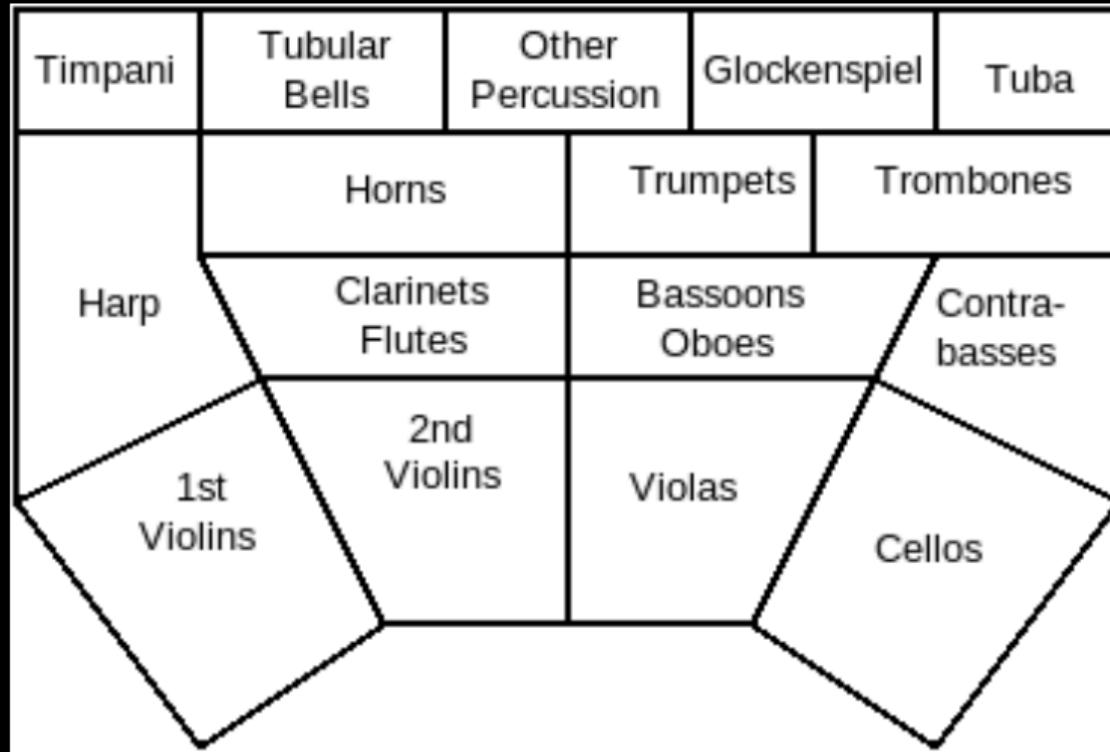
- Excellent template for Ardour DAW by Michael Willis
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- Pre-created MIDI tracks for many instruments (2 flutes, 2 oboes, ...)
 - **sfizz** LV2 used to assign VPO sounds to instruments
 - Different tracks for different string articulations
 - Panning of instruments to simulate stage presence
 - “DragonFly Reverb” LV2 busses to give proper distance (front, middle, back)

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- Tweaked for my own needs
 - Single track for grouped instruments (e.g., 1 “flutes” vs. 2 “flute”)
 - “Standard” SFZ files (albeit customised) instead of “Performance” ones
 - Articulation changes on the same track, via custom MIDI CC
 - Added more tracks that I use regularly (e.g., piano, guitars, drums, etc.)
 - Basic EQ on all tracks to avoid too many frequencies in the same place

Stage Presence (panning + reverbs)



From MuseScore to Ardour (and VPO)



- MuseScore is fine for scoring, but I need those tracks in Ardour (DAW)
 - Actual virtual orchestration happens there (MIDI-to-audio)
 - This is where mixing/mastering happens too (there may be other instruments)

¹<https://discourse.ardour.org/t/cleopatra-ep-rock-opera/110135/3?u=lminiero>

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 - 7 Balance and fine tune *ad libitum*, like there's no tomorrow!

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Adapting VPO's SFZ files for articulations



- MuseScore and VPO use different approaches for articulation changes
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- Modified VPO's SFZ to use custom MIDI CC (14) for switching
 - <https://github.com/lminiero/musescore-vpo-midi-actions/>
 - CC[14] = 0-19 (sustain), 20-39 (tremolo), 40-59 (normal), etc.

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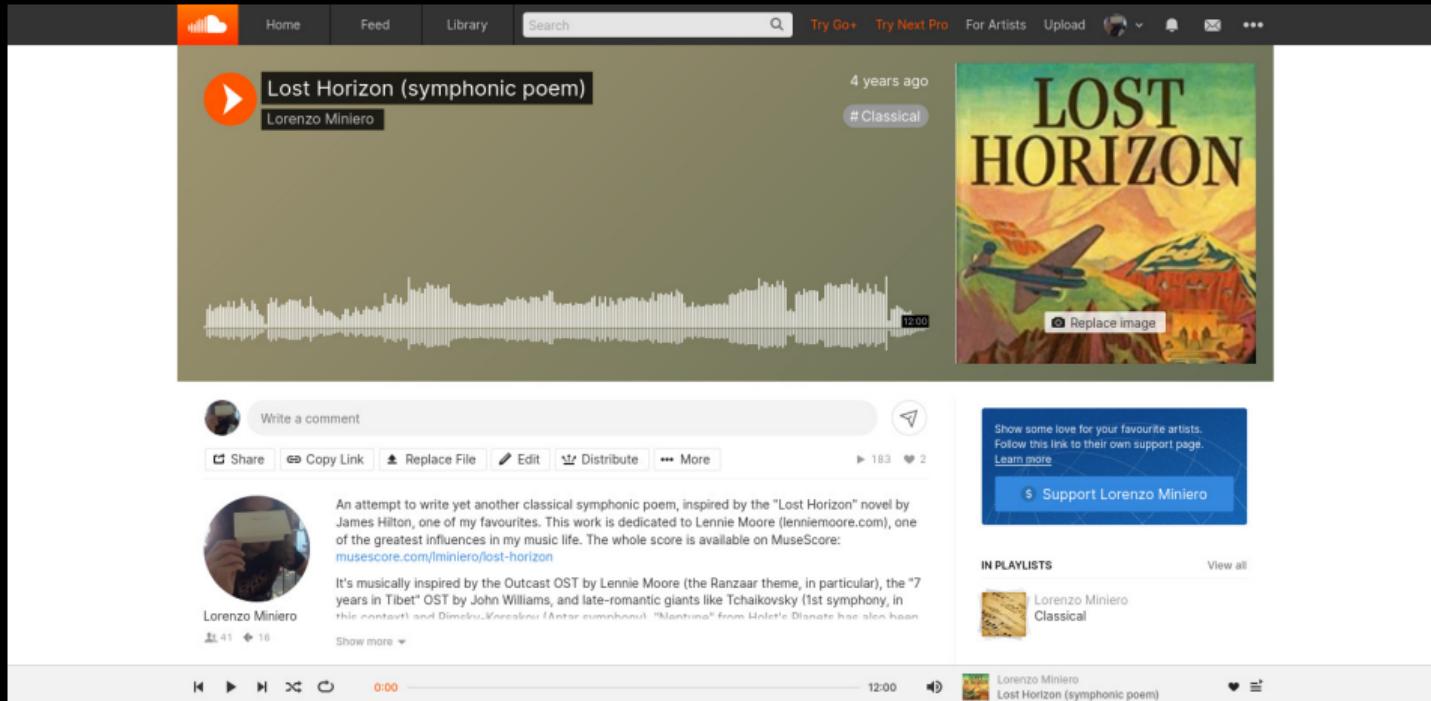
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 - CC[14] = 0-19 (sustain), 20-39 (tremolo), 40-59 (normal), etc.
- Automating articulation changes in DAW a bit of a manual process
 - Custom MIDI actions in MuseScore are hard to add, and don't always work
 - All articulation changes removed from MuseScore MIDI tracks
 - Manually added using MIDI CC automation in Ardour

Lost Horizon (symphonic poem)



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Lost Horizon (symphonic poem)
Lorenzo Miniero 4 years ago #Classical



Write a comment

Share Copy Link Replace File Edit Distribute More 183 2

An attempt to write yet another classical symphonic poem, inspired by the "Lost Horizon" novel by James Hilton, one of my favourites. This work is dedicated to Lennie Moore (lenniemooore.com), one of the greatest influences in my music life. The whole score is available on MuseScore: musescore.com/lminiero/lost-horizon

It's musically inspired by the Outcast OST by Lennie Moore (the Ranzaar theme, in particular), the "7 years in Tibet" OST by John Williams, and late-romantic giants like Tchaikovsky (1st symphony, in this context) and Dimiclo, Krasilnikov, Anton von Wongzai, "Mandarin" from Under the Distant Hill, etc.

Support Lorenzo Miniero

IN PLAYLISTS View all

Lorenzo Miniero Classical

0:00 12:00

<https://soundcloud.com/lminiero/lost-horizon>

“All I want for Christmas is Odin”



<https://video.lminiero.it/music/aiwfcio/>

Cleopatra (symphonic metal)



Lorenzo Miniero

Browse ▾

The album cover for "Cleopatra (EP)" by Lorenzo Miniero. It features a painting of Cleopatra and Antony in a dramatic, historical setting. The title "LORENZO MINIERO" is at the top, and "CLEOPATRA" is at the bottom.

Cleopatra (EP)

Lorenzo Miniero

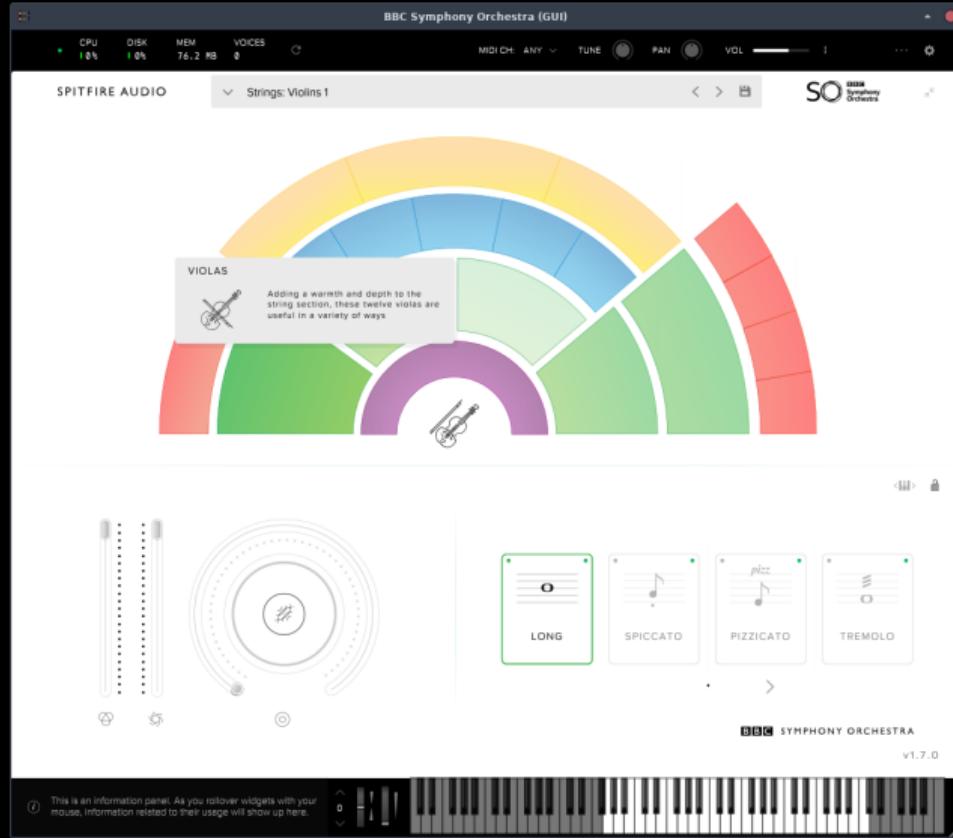
▶ Listen ⋮ About

A 27 minutes long symphonic rock instrumental on Cleopatra, split in 9 tracks.

01 I. Overture	5:24
02 II. Cleopatra's Fanfare	3:21
03 III. Antony and Cleopatra	2:40
04 IV. The Power of Rome	3:25

<https://music.lminiero.it/cleopatra/>

Experimenting with BBC SO Discover



BBC Symphony Orchestra Discover



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BBC Symphony Orchestra Discover



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 - Fewer instruments, fewer articulations, no legato, single dynamic layer
 - But what's there does sound really good!

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 - ... as long as you use the old Spitfire Labs application
 - <https://linuxmusicians.com/viewtopic.php?p=176400>
- Quite nice for blending purposes (*with* VPO, instead of replacing it)
 - Extended my template to add additional audio tracks for BBCSO instruments
 - Rendering in Carla + LinVST → recording in Ardour

R U There? (progressive rock)



Lorenzo Miniero

R U There?

Lorenzo Miniero

▶ Listen Download ... About

A progressive rock journey through the mind and its emotions. R u there?

Bandcamp Mirlo

r u there?

1. Remembrance	0:59
2. Resolve	4:54
3. Reverence	9:48
4. Reluctance	...

<https://music.lminiero.it/r-u-there/>

Next step: play with Muse Sounds?



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 - Basically MuseScore's "marketplace"
 - Initially a closed source application that required root access (not anymore)
- ... and MuseScore 4 (which not everyone is happy with)
 - Lacks features compared to MuseScore 3 (no JACK 😞), unstable for some (?)
 - <https://musescore.org/en/node/334701>

Read in detail (slightly outdated) here!



Lorenzo Miniero's blog

Home About

How do you become an orchestra composer using FOSS?

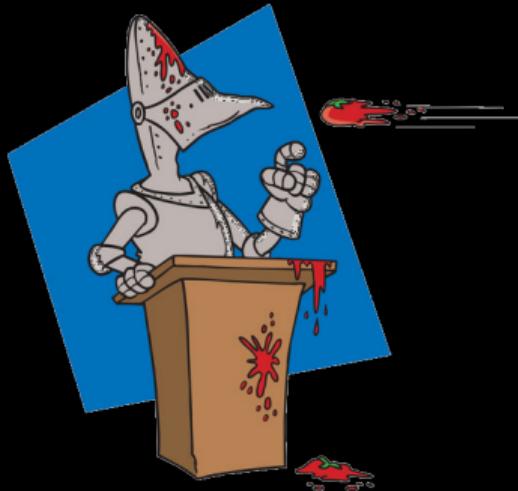
March 08, 2025

A photograph of four books standing upright on a light-colored wooden surface. From left to right: 1. 'GUIDE TO THE PRACTICAL STUDY OF HARMONY' by PETER ILYITCH TCHAIKOVSKY, published by RUGGIMENTI. 2. 'PRINCIPI DI ORCHESTRAZIONE' by NIKOLAJ RIMSKY-KORSAKOV, published by RUGGIMENTI. 3. 'Orchestration' by Cecil Forsyth, published by EDT. 4. 'LO STUDIO DELL' ORCHESTRAZIONE' by SAMUEL ADLER, published by EDT.

This was going to be the topic of one of the presentations I got accepted at [FOSDEM 2025](#). Unfortunately, a nasty flu got the best of me, so I had to cancel my attendance... As such, I decided to try and summarize the main points of the presentation I wanted to give in a more structured (and possibly too long?) post instead.

<https://blog.lminiero.it/virtual-orchestration/>

Thanks! Questions? Comments?



Contacts

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- 🐦 <https://bsky.app/profile/lminiero.it>
- 🔗 <https://music.lminiero.it>
- 🎥 <https://video.lminiero.it>