

- COMPOSER
- SCORE DEVELOPER
- AUDIO PROGRAMMER
- Sound Enginner
- SOFTWARE ENGINEER

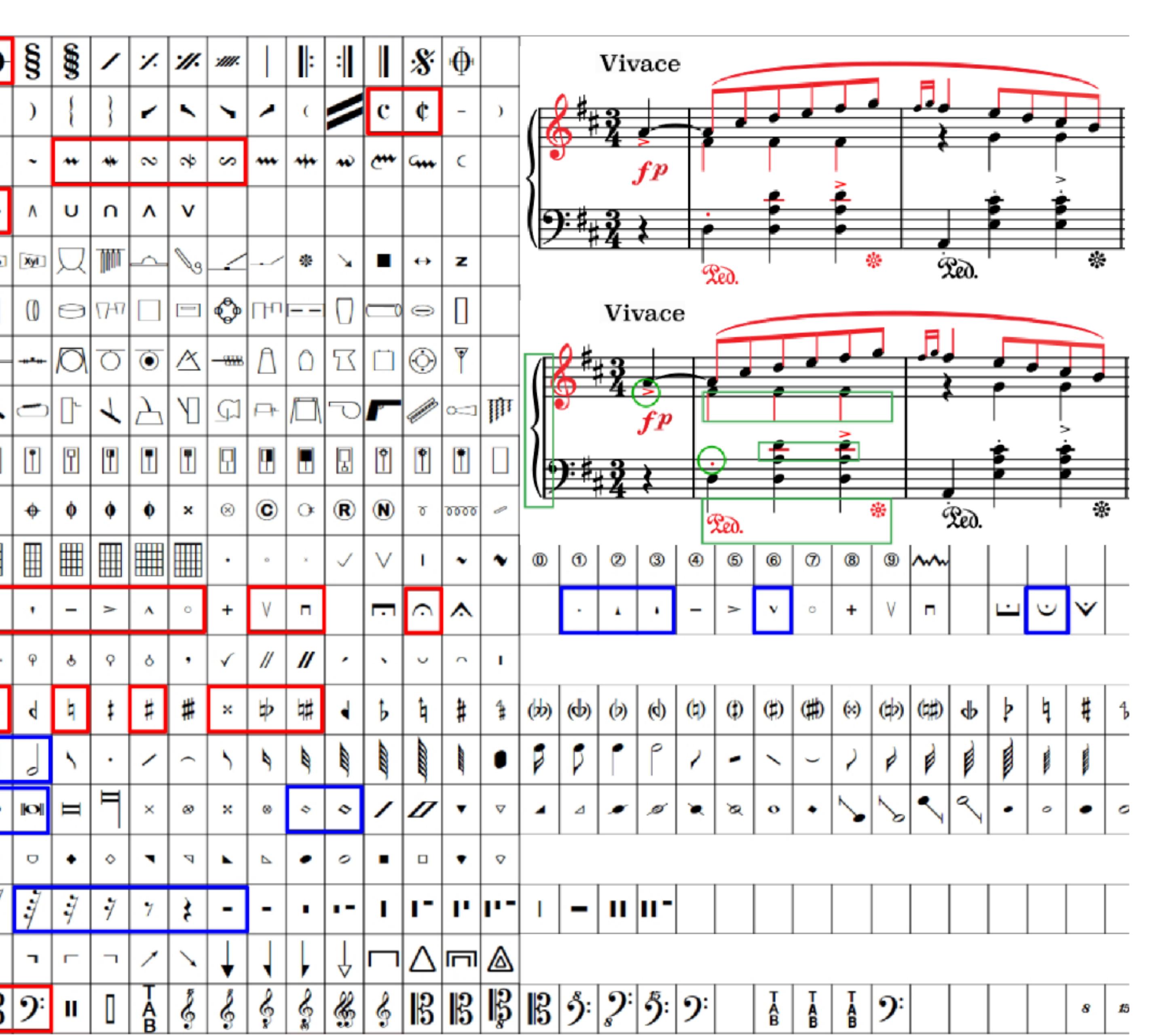


PARHAM
BEHZAD

mini portfolio

works
as

music engraver



he transitioned into the company's development team, where he began creating software tools to assist engravers and editors—enhancing speed, precision, and efficiency while reducing errors and minimizing the time required for proofreading and editing.

After five years of freelancing as a music engraver, Parham joined **Notengrafik** in Berlin as an intern. He quickly demonstrated exceptional speed and precision in music engraving, earning recognition for his brilliant skills. Thanks to his background in programming,



Musical score page showing parts for Oboe, Piano, Violin, Cello, and Double Bass. The score includes dynamic markings like *f*, *ppp*, *p*, *mp*, *ff*, and *ffz*, and performance instructions like "gliss.", "scratch", and "col legno."

Musical score page showing parts for Oboe, Piano, Violin, Cello, and Double Bass. The score includes detailed performance instructions with numerical values and specific dynamics like *f*, *pp*, *mp*, *ff*, *ffz*, and *sfz*.

Alongside his work in software development, Parham continued engraving and editing music, collaborating closely with senior editor Andrew Okrzejka. He has contributed to the engraving and editing of numerous large-scale compositions by composers such as Enno Poppe, Philippe Manoury, Ming Tsao, and Rebecca Saunders. Additionally, he played a role in producing new critical editions of two iconic operas: *Der Rosenkavalier* by Richard Strauss and *Carmen* by Georges Bizet for the Staatsoper Berlin.



Hèctor Parra's string quartet nr. 4 (in memoriam Robert Gerhard) was meant to be premiered April 2020 during the Wittener Tage für neue Kammermusik by the Jack Quartet. Like any other, this concert has been postponed due to the Covid-19 pandemia.

Have a look at a couple of pages from the beautiful score, done by Parham at Notengrafik Berlin by Sibelius®

H. Parra: Un Concertino di angel contro le pareti del mio cranio © Édition Durand

On the 7th of May Paris Percussion Group premiered "Silex" for 12 percussionists.

OUVRAGE PROTÉGÉ
Toute reproduction (photocopie,
numérisation...) même partielle
constitue une contrefaçon

dédicacé au Paris Percussion Group

SILEX

pour ensemble de 12 percussions

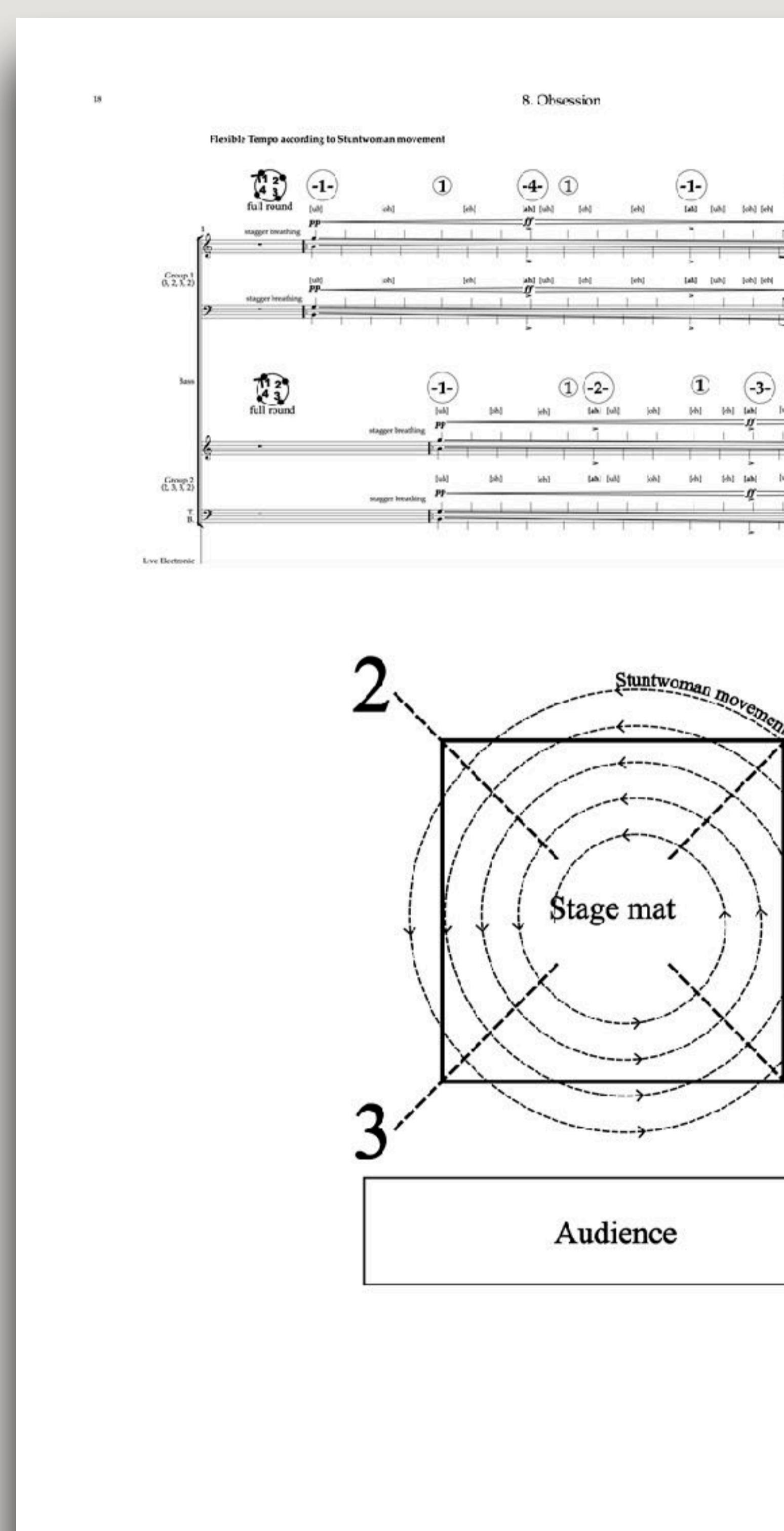
Philippe Manoury

Venue:
Auditorium de
Radio-France
(Paris),
direction:
Julien Leroy

Philippe wrote to us: "I just received the score of Silex. Congratulations. It is very well done and quite beautiful."

zscore.art

Since 2023, Parham has launched **WWW.ZSCORE.ART** as a brand for his music engraving, orchestration, and other composition services. His first major project under this name was engraving/orchestrating a grand opera by the renowned Israeli composer **Amir Shpilman**, written for orchestra and two stuntwomen.



A detailed page from the orchestra score for section B 1. The page features multiple staves for various instruments, including strings (Violin I, Violin II, Viola, Cello), brass (Trombone, Bass Trombone), woodwinds (Oboe, Clarinet, Bassoon), and percussion (Timpani, Snare Drum, Bass Drum). The score includes dynamic markings such as 'ff', 'pp', 'f', and 'mf'. The vocal parts for 'Soprano A', 'Soprano B', and 'Choir' are also present. The page number '7' is in the top right corner.

The orchestration in this section was generated using a computer-assisted process developed by Parham as a Sibelius® plugin.

from score engraving to score developing

After extensive discussions with **Shpilman**—who feared his ideas couldn't be realized within the limited time—Parham developed a plugin that systematically orchestrated and notated his material in real time, aligning with the composer's creative process. This innovation streamlined the production of documentation and performance notes for conductors.

Modules Instructions:

Pre Impact, Impact, Post Impact Modules

A core element of the work is the "Impact phrase." On a timeline, "Impact" represents a catalytic moment that initiates the journey of coping with a traumatic event. This impact is a life-changing focal point, a brief yet powerful moment that continues to resonate in our minds long into the future. The Impact phrase is constructed of three parts:

Part 1: Pre Impact - represents everything that happens before the Impact. Usually a tension-building element such as acceleration, crescendo, joining many instruments in a short amount of time, etc.

Part 2: Impact - an impactful event, represented through short, explosive, loud, and bursting elements such as *sabato*, high dynamics, orchestral unison, etc.

Part 3: Post Impact - an expression of the immediate reaction to an Impact, usually having aftershock characteristics such as echo, airy sounds, and decay.

Impact Phrase Module

To merge with the "uncontrolled" physical actions on the stage, some "Impact-phrases" are designed in a flexible manner, allowing the conductor to shorten the pre-impact part according to the action on stage as well as initiate Impacts in sync with the Impact landings of the stuntwoman.

An example of a complete "Impact phrase" can be found in Bars 89 - 93.

Thematic Element module

The Thematic Element Module is a flexible passage that reappears throughout the entire opera and has a dramaturgical function based on various moments in the piece. It is also used as a connector between different scenes.

The module is constructed of harmonic progression with voice leading moving in glissando between melodic and enharmonic chords. The glissando progression has three speeds: slow, medium, and fast. The module is performed by string instruments, and the three speeds vary based on the dramaturgy. Conductors are required to adjust the Thematic Element tempo in accordance with the action on stage. This module consists of three parts:

1. Beginning
2. Middle
3. End

Each part requires a conductor to cue its arrival. The module also includes three tempos: fast, moderate, and slow. Example of a complete "Thematic Element Module" can be found in Bar 64.

Chapter Instructions and Notes:

Overture:

The orchestra follows these groupings as the chapters progress:

A (Bars 3-10):

Group A	Group e	Group d	Group s	Group f	Group g	Group h	Group i	Group j	Group k
Wind and Brass	H1, Ob1, Bcl1, Hn1, Tpt1, Ob1	Cbr2, Ob2, Bcl2, Hn2, Tpt2, Bb1-Hn1	Cbr1, Hn1, To	Cbr2, Hn2					
Credit	Soprano	Alto	Tenor	Bass					
Strings	I=1+1+1	I=1+1+1	I=1+2+1	2+1+2+1					

B and C (Bars 11 - 44):

Group A	Group e	Group d	Group s	Group f	Group g	Group h	Group i	Group j	Group k
G1	Cbr2	Ob1	D2	Tba	Vln1	Cbr1	Bb1	Vln1	Vln1
G2	Bb2	I=1+1+1	Hn1	Vln2	Vln1	I=1+1+1	Vln2	Vln2	Vln2
G3	Vln3	I=1+1+1	Hn2	Vln3	Vln2	I=1+1+1	Vln3	Vln3	Vln3
G4	Vln4	I=1+1+1	Hn3	Vln4	Vln3	I=1+1+1	Vln4	Vln4	Vln4
G5	Ob1	I=1+1+1	Hn4	Vln5	Vln4	I=1+1+1	Vln5	Vln5	Vln5
G6	Vln6	I=1+1+1	Hn5	Vln6	Vln5	I=1+1+1	Vln6	Vln6	Vln6
G7	Vln7	I=1+1+1	Hn6	Vln7	Vln6	I=1+1+1	Vln7	Vln7	Vln7
G8	Vln8	I=1+1+1	Hn7	Vln8	Vln7	I=1+1+1	Vln8	Vln8	Vln8
G9	Vln9	I=1+1+1	Hn8	Vln9	Vln8	I=1+1+1	Vln9	Vln9	Vln9
G10	Vln10	I=1+1+1	Hn9	Vln10	Vln9	I=1+1+1	Vln10	Vln10	Vln10
G11	Vln11	I=1+1+1	Hn10	Vln11	Vln10	I=1+1+1	Vln11	Vln11	Vln11
G12	Vln12	I=1+1+1	Hn11	Vln12	Vln11	I=1+1+1	Vln12	Vln12	Vln12
G13	Vln13	I=1+1+1	Hn12	Vln13	Vln12	I=1+1+1	Vln13	Vln13	Vln13
G14	Vln14	I=1+1+1	Hn13	Vln14	Vln13	I=1+1+1	Vln14	Vln14	Vln14
G15	Vln15	I=1+1+1	Hn14	Vln15	Vln14	I=1+1+1	Vln15	Vln15	Vln15
G16	Vln16	I=1+1+1	Hn15	Vln16	Vln15	I=1+1+1	Vln16	Vln16	Vln16
G17	Vln17	I=1+1+1	Hn16	Vln17	Vln16	I=1+1+1	Vln17	Vln17	Vln17
G18	Vln18	I=1+1+1	Hn17	Vln18	Vln17	I=1+1+1	Vln18	Vln18	Vln18
G19	Vln19	I=1+1+1	Hn18	Vln19	Vln18	I=1+1+1	Vln19	Vln19	Vln19
G20	Vln20	I=1+1+1	Hn19	Vln20	Vln19	I=1+1+1	Vln20	Vln20	Vln20
G21	Vln21	I=1+1+1	Hn20	Vln21	Vln20	I=1+1+1	Vln21	Vln21	Vln21
G22	Vln22	I=1+1+1	Hn21	Vln22	Vln21	I=1+1+1	Vln22	Vln22	Vln22
G23	Vln23	I=1+1+1	Hn22	Vln23	Vln22	I=1+1+1	Vln23	Vln23	Vln23
G24	Vln24	I=1+1+1	Hn23	Vln24	Vln23	I=1+1+1	Vln24	Vln24	Vln24
G25	Vln25	I=1+1+1	Hn24	Vln25	Vln24	I=1+1+1	Vln25	Vln25	Vln25
G26	Vln26	I=1+1+1	Hn25	Vln26	Vln25	I=1+1+1	Vln26	Vln26	Vln26
G27	Vln27	I=1+1+1	Hn26	Vln27	Vln26	I=1+1+1	Vln27	Vln27	Vln27
G28	Vln28	I=1+1+1	Hn27	Vln28	Vln27	I=1+1+1	Vln28	Vln28	Vln28
G29	Vln29	I=1+1+1	Hn28	Vln29	Vln28	I=1+1+1	Vln29	Vln29	Vln29
G30	Vln30	I=1+1+1	Hn29	Vln30	Vln29	I=1+1+1	Vln30	Vln30	Vln30
G31	Vln31	I=1+1+1	Hn30	Vln31	Vln30	I=1+1+1	Vln31	Vln31	Vln31
G32	Vln32	I=1+1+1	Hn31	Vln32	Vln31	I=1+1+1	Vln32	Vln32	Vln32
G33	Vln33	I=1+1+1	Hn32	Vln33	Vln32	I=1+1+1	Vln33	Vln33	Vln33
G34	Vln34	I=1+1+1	Hn33	Vln34	Vln33	I=1+1+1	Vln34	Vln34	Vln34
G35	Vln35	I=1+1+1	Hn34	Vln35	Vln34	I=1+1+1	Vln35	Vln35	Vln35
G36	Vln36	I=1+1+1	Hn35	Vln36	Vln35	I=1+1+1	Vln36	Vln36	Vln36
G37	Vln37	I=1+1+1	Hn36	Vln37	Vln36	I=1+1+1	Vln37	Vln37	Vln37
G38	Vln38	I=1+1+1	Hn37	Vln38	Vln37	I=1+1+1	Vln38	Vln38	Vln38
G39	Vln39	I=1+1+1	Hn38	Vln39	Vln38	I=1+1+1	Vln39	Vln39	Vln39
G40	Vln40	I=1+1+1	Hn39	Vln40	Vln39	I=1+1+1	Vln40	Vln40	Vln40
G41	Vln41	I=1+1+1	Hn40	Vln41	Vln40	I=1+1+1	Vln41	Vln41	Vln41
G42	Vln42	I=1+1+1	Hn41	Vln42	Vln41	I=1+1+1	Vln42	Vln42	Vln42
G43	Vln43	I=1+1+1	Hn42	Vln43	Vln42	I=1+1+1	Vln43	Vln43	Vln43
G44	Vln44	I=1+1+1	Hn43	Vln44	Vln43	I=1+1+1	Vln44	Vln44	Vln44

Group A	Group e	Group d	Group s	Group f	Group g	Group h	Group i	Group j	Group k
R1	Ob1	I=1+1	Vln1	Tpt1	Vln2	Vln3	Vln4	Vln5	Vln6
G1	Ob1	I=1+1	Vln1	Tpt1	Vln2	Vln3	Vln4	Vln5	Vln6
D1	Ob1	I=1+1	Vln1	Tpt1	Vln2	Vln3	Vln4	Vln5	Vln6
E1	Ob1	I=1+1	Vln1	Tpt1	Vln2	Vln3	Vln4	Vln5	Vln6
Vln1	Ob1	I=1+1	Vln1	Tpt1	Vln2	Vln3	Vln4	Vln5	Vln6
Vln2	Ob1	I=1+1	Vln1	Tpt1	Vln2	Vln3	Vln4	Vln5	Vln6
Vln3	Ob1	I=1+1	Vln1	Tpt1	Vln2	Vln3	Vln4	Vln5	Vln6
Vln4	Ob1	I=1+1	Vln1	Tpt1	Vln2	Vln3	Vln4	Vln5	Vln6
Vln5	Ob1	I=1+1	Vln1	Tpt1	Vln2	Vln3	Vln4	Vln5	Vln6
Vln6	Ob1	I=1+1	Vln1	Tpt1	Vln2	Vln3	Vln4	Vln5	Vln6
Vln7	Ob1	I=1+1	Vln1	Tpt1	Vln2	Vln3	Vln4	Vln5	Vln6
Vln8	Ob1	I=1+1	Vln1	Tpt1	Vln2	Vln3	Vln4	Vln5	Vln6
Vln9	Ob1	I=1+1	Vln1	Tpt1	Vln2	Vln3</			



Photos by → Johan Planefeldt

<https://www.cultopia.gr/projects/Impact>

score and performance materials produced by Parham Behzad at zscore.art

New orchestral piece by Shpilman, score and parts and performance materials done by Parham at zscore.art studio premiered by Berlin Philharmonic

[Listen here](#)

Amir Shpilman

קָרְיאַת שֵׁמֶע Kriat Shema

Fantasy for Shofar and Orchestra

(2025)

For Bar Zemach

...

Dedicated to Yehezkel Tehory, RIP

- *) "Tekiah: The Unbroken Call – A Sound of Strength and Presence"
- "The breath of creation itself" – The Shofar is not just heard; it is breathed into existence. The mystics (Sefer Yetzirah 2:2) describe creation as formed through breath—just as God breathed life into Adam, the sound of the Shofar is the exhalation of the human spirit, shaping the world with its cry.
- "The moment the world stood still" – The Midrash (Shemot Rabbah 29:9) teaches that when the Shofar sounded, no bird flew, no ox bellowed, the sea did not move, and the angels did not sing—for the first and only time, creation was entirely silent, listening to the divine voice.
- "A voice that grows but never fades" – At Mount Sinai, the Shofar was sounded, and its blast grew stronger and stronger (Exodus 19:19). Unlike human voices that weaken, the divine call only intensifies. The Midrash (Shemot Rabbah 29:7) explains that this symbolizes a revelation that never ceases, echoing through time.
- "A pillar of fire that does not flicker" – The Tekiah is a clear, unbroken sound, like the divine presence at Sinai (Exodus 19:16), steady and unwavering. The Midrash (Tanchuma, Yitro 11) describes the voice of God at Sinai as a **continuous flame**, strong and unfaltering—just like the Tekiah, a call of certainty and clarity.
- "The first breath, the final breath" – The Tekiah begins and ends the sequence of blasts, framing the entire experience. It is the first note of creation, the last note before redemption, the sound that affirms existence.

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Score Typesetting & Engraving by
Parham Behzad | ZSCORE – Berlin
www.zscore.art

Current engraving project, a mass choir for collaborative performance with more than 100 singers

works
as

sound engineer



Recital of Flute - Carla García Heredia
Sound engineer and live electronics operator: Parham Behzad
Pierre Boulez Saal - Berlin, Germany - 2024

With over 15 years of experience using various DAWs, his favorite has always been Ableton Live, which he has been using since Live 8. You can confidently call him a superuser—he leverages Max for Live to build custom effects and instruments, and his vast VST plugin library makes him unstoppable in executing any musical idea with absolute precision and elegance.



Recital of Percussion - Roshanak Rafani
Sound engineer and live electronics operator: Parham Behzad
Pierre Boulez Saal - Berlin, Germany - 2023



Live Sound Engineering

From 2023 to 2024, he worked as a sound engineer at **Pierre Boulez Saal** in Berlin, handling recording, live performance, and post-production for numerous concerts.

real-time audio
processing, spatial
audio, and
multichannel setups,
incorporating
electronic elements
into acoustic
productions

Electronic Sound Design & Integration



Recital of Bassoon -Nur Koc
Sound engineer and live electronics operator: Parham Behzad
Pierre Boulez Saal - Berlin, Germany - 2024



Technical Mastery

Proficient in DAWs (Pro Tools, Reaper, Ableton) high-end plugins, outboard gear, and digital/analog signal processing.

Custom Audio Solutions

Innovates tailored workflows and develops software tools to streamline any task.



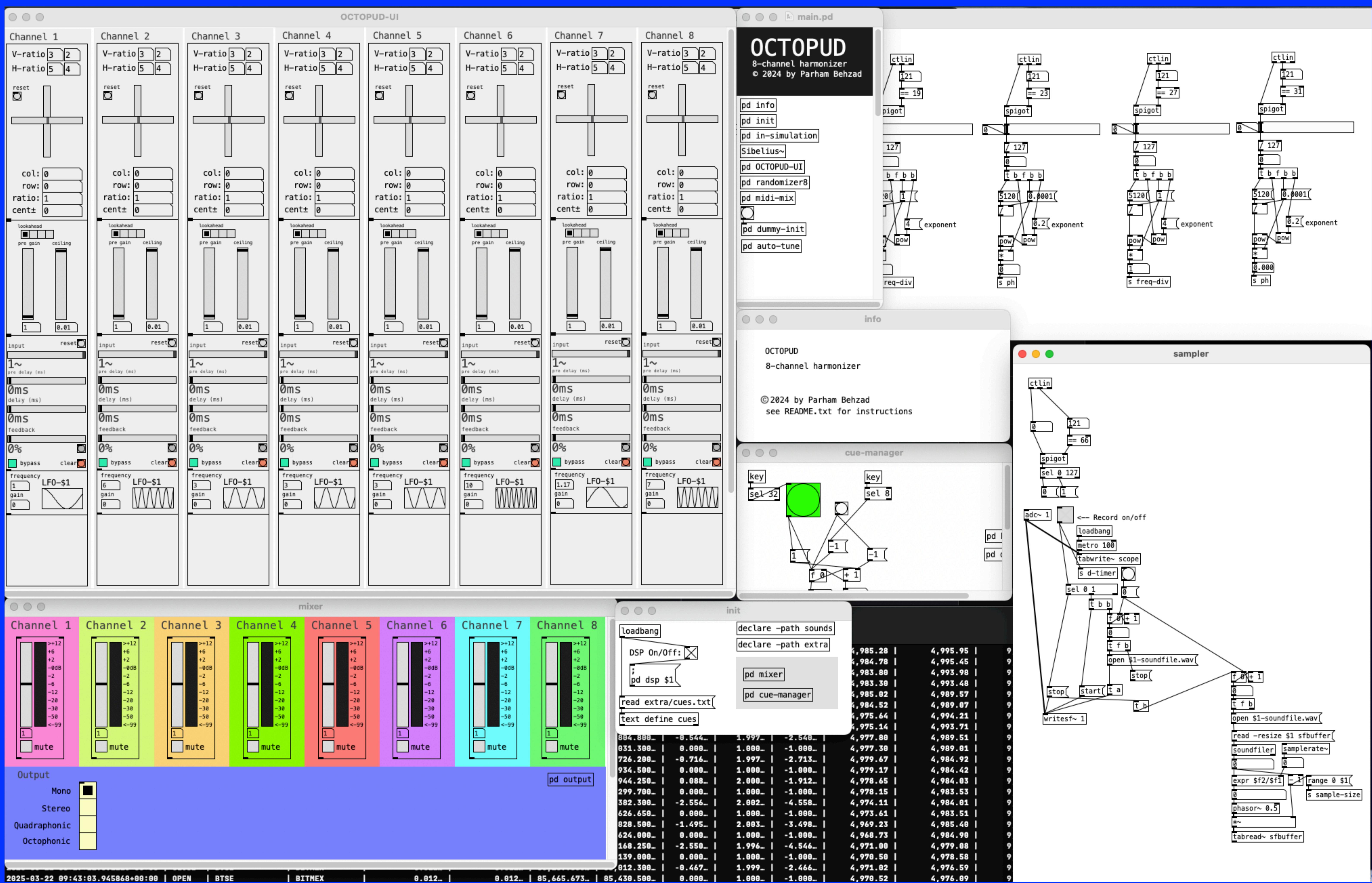


Parham Behzad's Home Studio

Over the years, he has developed a high level of expertise in audio engineering and studio production. As a ghost producer, he has mixed and mastered numerous songs for emerging artists.



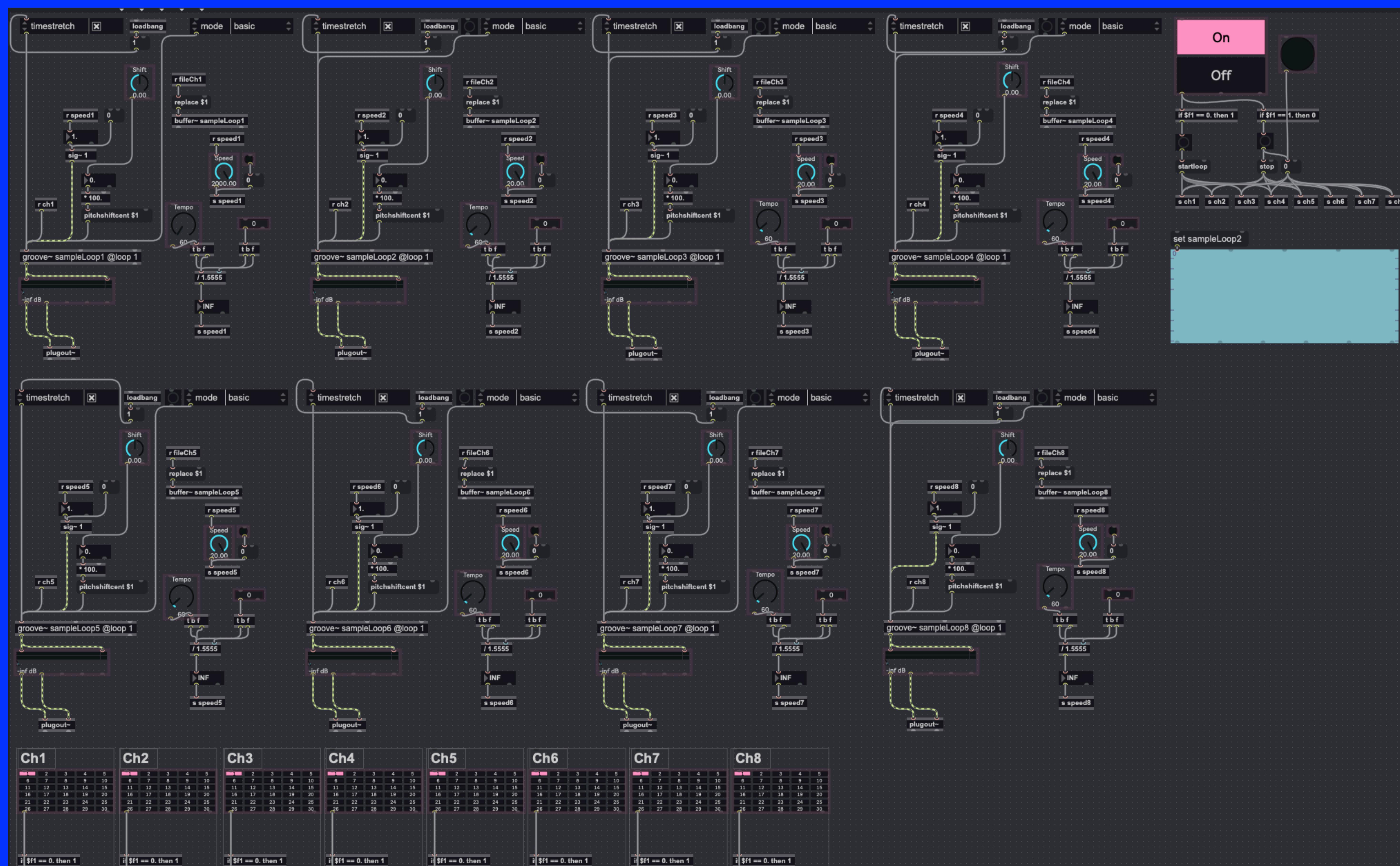
works as audio programmer



OCTOPUD is a Pure Data patch developed by Parham in 2024 and premiered at the Großer Saal, Mozarteum, in a concert featuring solo double bass and an 8-channel speaker setup. The patch actively listens to the performance, using musical fragments as audio prompts. In real time, it manipulates the material through autotuning, pitch shifting, delays, and LFOs, generating dynamic rhythmic structures and evolving textures.



“my8-32%\$sampler” is a Max for Live patch built in Max/MSP—more than just a sampler, it’s a fifth-dimensional sampler. It features 8 channels, each equipped with pitch shifters and tuners, along with 32 sampling slots per channel. This allows users to automate sample changes seamlessly during live performances, unlocking deep sonic manipulation and real-time flexibility.



works as software developer

Euler Lattice Lab

Start Frequency: or Start Note:

Horizontal Ratio: Vertical Ratio:

< > Chord: 0

Euler Lattice Lab - is a JavaScript app that allows users to create harmonies based on just intonation, providing an intuitive and interactive way to explore pure harmonic relationships.

<https://parhambehzad.com/JSpromises/>

Euler Lattice Lab

Start Frequency: or Start Note:

Horizontal Ratio: Vertical Ratio:

C4	E4	G4	B4	C5	F5	A5	C#5	F#5	A#5	D6	F#6	A6	C#7	F7	A7	C#8	F8	A8	C9	E9	G9	B9	
1864.20 Hz	1330.26 Hz	+15.35¢	+1.47¢	2078.52 Hz	2598.16 Hz	3247.70 Hz	-12.01¢	-27.78¢	-39.39¢	2706.41 Hz	3383.02 Hz	4059.62 Hz	5074.52 Hz	6343.15 Hz	7928.94 Hz	9911.18 Hz	12388.97 Hz	15486.22 Hz	12834.21 Hz	15486.22 Hz	12834.21 Hz		
+29.04¢	+15.35¢	+1.47¢	-0.27¢	-15.97¢	-27.66¢	-39.39¢	-15.97¢	-27.78¢	-39.39¢	+44.92¢	+33.26¢	+19.55¢	+5.86¢	-9.78¢	-27.34¢	-39.11¢	-47.21¢	-37.15¢	-49.16¢	-37.15¢	-35.28¢		
20800000000	3869835264:4080000000	967458816:80000000	241864704:16000000	60466176:32000000	15115446:64000000	3779136:1280000	944784:256000	236196:5120	59849:1024	295245:4896	1476225:16384	7381125:65536	36905625:262144	102515625:1048576	512578125:4194384	2466375:32768	12301875:131072	61509375:524288	102515625:1048576	12834.21 Hz	15486.22 Hz	12834.21 Hz	
i Hz	709.47 Hz	886.84 Hz	1108.55 Hz	1385.68 Hz	1752.10 Hz	2165.13 Hz	2598.16 Hz	3247.70 Hz	3958.72 Hz	4689.62 Hz	5074.52 Hz	6343.15 Hz	7928.94 Hz	9911.18 Hz	12388.97 Hz	15486.22 Hz	12834.21 Hz	15486.22 Hz	12834.21 Hz	15486.22 Hz			
64	+27.68¢	+13.40¢	-0.27¢	-15.97¢	-27.78¢	-39.39¢	-15.97¢	-27.66¢	-39.39¢	+44.92¢	+33.26¢	+19.55¢	+5.86¢	-9.78¢	-27.34¢	-39.11¢	-47.21¢	-37.15¢	-49.16¢	-37.15¢	-35.28¢		
0000000000	128994588:2000000000	322486272:40000000	88621568:80000000	20155392:16000000	5038848:32000000	1259712:640000	314928:128000	78732:25600	19683:512	98415:2048	492075:8192	2466375:32768	12301875:131072	61509375:524288	102515625:1048576	512578125:4194384	2466375:32768	12301875:131072	61509375:524288	102515625:1048576	12834.21 Hz		
i Hz	472.98 Hz	591.22 Hz	739.83 Hz	923.79 Hz	1154.74 Hz	1443.42 Hz	1804.28 Hz	2255.34 Hz	2819.18 Hz	3523.97 Hz	4404.97 Hz	5506.21 Hz	6687.45 Hz	8259.32 Hz	10324.14 Hz	12985.18 Hz							
48	+25.14¢	+11.44¢	-2.24¢	-15.93¢	-29.62¢	-43.30¢	+43.01¢	+29.33¢	+15.64¢	+1.95¢	-11.73¢	-25.42¢	-31.49¢	-39.11¢	-47.21¢	+33.52¢	+45.25¢	+31.57¢	+49.16¢	+17.88¢	+4.28¢		
5000000000	429981696:1080000000	167495424:26000000	26873856:40000000	6718646:8000000	167916:1600000	419964:3200000	104976:64000	26244:12800	6561:256	32805:1024	164025:4096	820125:16384	4100625:65536	2805125:262144	102515625:1048576	512578125:4194384	2466375:32768	12301875:131072	61509375:524288	102515625:1048576	12834.21 Hz		
i Hz	315.37 Hz	394.15 Hz	492.69 Hz	615.82 Hz	769.82 Hz	962.28 Hz	1282.85 Hz	1581.56 Hz	1879.45 Hz	2349.32 Hz	2936.65 Hz	3670.81 Hz	4588.81 Hz	5735.44 Hz	7169.54 Hz	8961.93 Hz	11282.41 Hz	+1.40¢	+1.40¢	+1.40¢	+1.40¢		
76	+23.16¢	+9.47¢	-4.19¢	-10.83¢	-13.52¢	-19.49¢	-45.26¢	+27.37¢	+13.68¢	-0.86¢	-13.49¢	-27.37¢	-41.96¢	-53.17¢	-61.94¢	-73.74¢	-85.53¢	-97.31¢	-109.08¢	-120.85¢	-132.62¢		
5000000000	143327232:5000000000	35831808:1000000000	8957952:20000000	2239488:40000000	559872:8000000	1399848:1600000	34992:3200000	8748:6400	2187:1280	19395:512	5647:2048	273375:8192	1566975:32768	6834375:131072	34171875:524288	102515625:1048576	512578125:4194384	2466375:32768	12301875:131072	61509375:524288	102515625:1048576	12834.21 Hz	
i Hz	218.23 Hz	262.77 Hz	328.46 Hz	410.57 Hz	513.22 Hz	641.52 Hz	801.90 Hz	1082.38 Hz	1252.97 Hz	1566.21 Hz	1957.76 Hz	2447.29 Hz	3059.01 Hz	3832.76 Hz	4623.51 Hz	5410.98 Hz	6198.45 Hz	6976.82 Hz	7754.19 Hz	8532.32 Hz	9310.50 Hz		
56	+21.24¢	+7.59¢	-6.17¢	-19.82¢	-33.52¢	-47.22¢	+39.10¢	+25.41¢	+11.73¢	-1.95¢	-15.64¢	-21.48¢	-27.37¢	-33.24¢	-43.01¢	-48.78¢	-54.55¢	-60.32¢	-66.09¢	-71.86¢	-76.63¢		
2500000000	4777574:2500000000	11943935:1000000000	2985984:20000000	764696:40000000	186624:8000000	46656:8000000	11664:1600000	2916:3200000	729:64	3645:1280	18225:1024	91125:4096	45625:16384	2278125:65536	1398625:262144	102515625:1048576	512578125:4194384	2466375:32768	12301875:131072	61509375:524288	102515625:1048576	12834.21 Hz	
i Hz	146.14 Hz	175.18 Hz	218.97 Hz	273.72 Hz	342.14 Hz	427.68 Hz	534.69 Hz	668.25 Hz	835.31 Hz	1044.14 Hz	1305.18 Hz	1631.47 Hz	2039.34 Hz	2549.17 Hz	3186.44 Hz	3983.88 Hz	4788.85 Hz	5581.93 Hz	6379.28 Hz	7188.45 Hz	7953.02 Hz		
56	+19.28¢	+5.62¢	-8.11¢	-21.78¢	-35.49¢	-49.17¢	+37.15¢	+23.45¢	+9.77¢	-3.91¢	-17.69¢	-23.29¢	-34.47¢	-44.97¢	-54.13¢	-64.34¢	-74.71¢	-84.98¢	-94.25¢	-104.52¢	-114.79¢		
2500000000	15925246:1250000000	3981312:2500000000	995328:5000000000	248832:1000000000	62208:2600000000	15552:4096000000	3888:8000000000	972:1600000000	243:3200000000	1215:1280000000	6075:512	30375:2048000000	759375:131072	151875:32768	34794375:131072	102515625:1048576	512578125:4194384	2466375:32768	12301875:131072	61509375:524288	102515625:1048576	12834.21 Hz	
i Hz	104.14 Hz	135.79 Hz	145.98 Hz	182.48 Hz	228.10 Hz	285.12 Hz	356.40 Hz	445.59 Hz	556.88 Hz	696.09 Hz	878.12 Hz	1087.65 Hz	1359.56 Hz	1699.45 Hz	2124.31 Hz	2655.39 Hz	3319.23 Hz	4149.62 Hz	4978.85 Hz	5748.28 Hz	6523.90 Hz		
14	+17.28¢	+3.64¢	-10.83¢	-23.77¢	-48.99¢	-71.51¢	+35.18¢	+21.51¢	+7.81¢	-5.88¢	-19.55¢	-35.24¢	-49.16¢	-64.92¢	-74.71¢	-84.59¢	-94.38¢	-104.17¢	-114.06¢	-123.85¢	-133.64¢		
1250000000	5308416:4250000000	1327104:1250000000	331776:2500000000	82944:5000000000	20736:1000000000	5184:2000000000	1296:4000000000	324:8000000000	81:16	405:64	2025:256	10125:1024	50625:4096	253125:16384	1265625:65536	328125:262144	102515625:1048576	512578125:4194384	2466375:32768	12301875:131072	61509375:524288	102515625:1048576	12834.21 Hz
i Hz	62.29 Hz	77.86 Hz	97.32 Hz	121.65 Hz	152.86 Hz	190.08 Hz	237.60 Hz	297.00 Hz	371.25 Hz	454.66 Hz	580.08 Hz	725.10 Hz	906.37 Hz	1132.97 Hz	1416.21 Hz	1770.26 Hz	2122.82 Hz	2477.51 Hz	2826.88 Hz	3176.25 Hz	3527.62 Hz		
26	+15.23¢	+1.71¢	-12.64¢	-25.69¢	-39.35¢	-46.90¢	+33.25¢	+19.58¢	+5.89¢	-7.81¢	-21.51¢	-35.20¢	-48.88¢	-62.67¢	-76.46¢	-90.25¢	-103.94¢	-117.73¢	-131.				

Overtones Lab

Fundamental Pitch: Number of Harmonics:

<https://parhambehzad.com/JSprojects/harmonics/>

Overtones Lab

Fundamental Pitch: Number of Harmonics:

1° A2 0¢ 110.00 Hz Midi: 45	2° A3 0¢ 220.00 Hz Midi: 57	3° E4 +2¢ 330.00 Hz Midi: 64	4° A4 0¢ 440.00 Hz Midi: 69	5° C#5 -14¢ 550.00 Hz Midi: 73	6° E5 +2¢ 660.00 Hz Midi: 76	7° G5 -31¢ 770.00 Hz Midi: 79	8° A5 0¢ 880.00 Hz Midi: 81	9° B5 +4¢ 990.00 Hz Midi: 83	10° C#6 -14¢ 1100.00 Hz Midi: 85	11° D#6 -49¢ 1210.00 Hz Midi: 87	12° E6 +2¢ 1320.00 Hz Midi: 88	13° F6 +41¢ 1430.00 Hz Midi: 89
---	---	--	---	--	--	---	---	--	--	--	--	---

Overtones Lab - is a JavaScript app that enables users to create harmonies based on natural overtone relationships, offering an intuitive way to explore the physics of sound and pure harmonic structures.

FINGERS is a work-in-progress Python web application that maps a string instrument's fingerboard and suggests the best fingering for any chord or musical fragment input by the user or detected from an uploaded screenshot.

It's also a valuable tool for songwriters and composers, helping them verify and refine their string section scoring with ease.

The screenshot shows a PyCharm IDE and a web browser side-by-side. The PyCharm interface includes:

- A left sidebar with project files: fingerboard.py, test.py, harmonics.py, and testttt.py.
- An editor window containing the `fingerboard.py` source code.
- A terminal window at the bottom showing command-line output related to the application's setup.

The browser window displays a "Dash" application running on `127.0.0.1:8050`. It features a "Finger board" visualization with four octaves (G3 to E5) and 24 frets. The board is a grid where each cell contains a note name (e.g., E5, B5, F#5, G5, etc.) indicating its pitch. The notes are color-coded according to their frequency content.

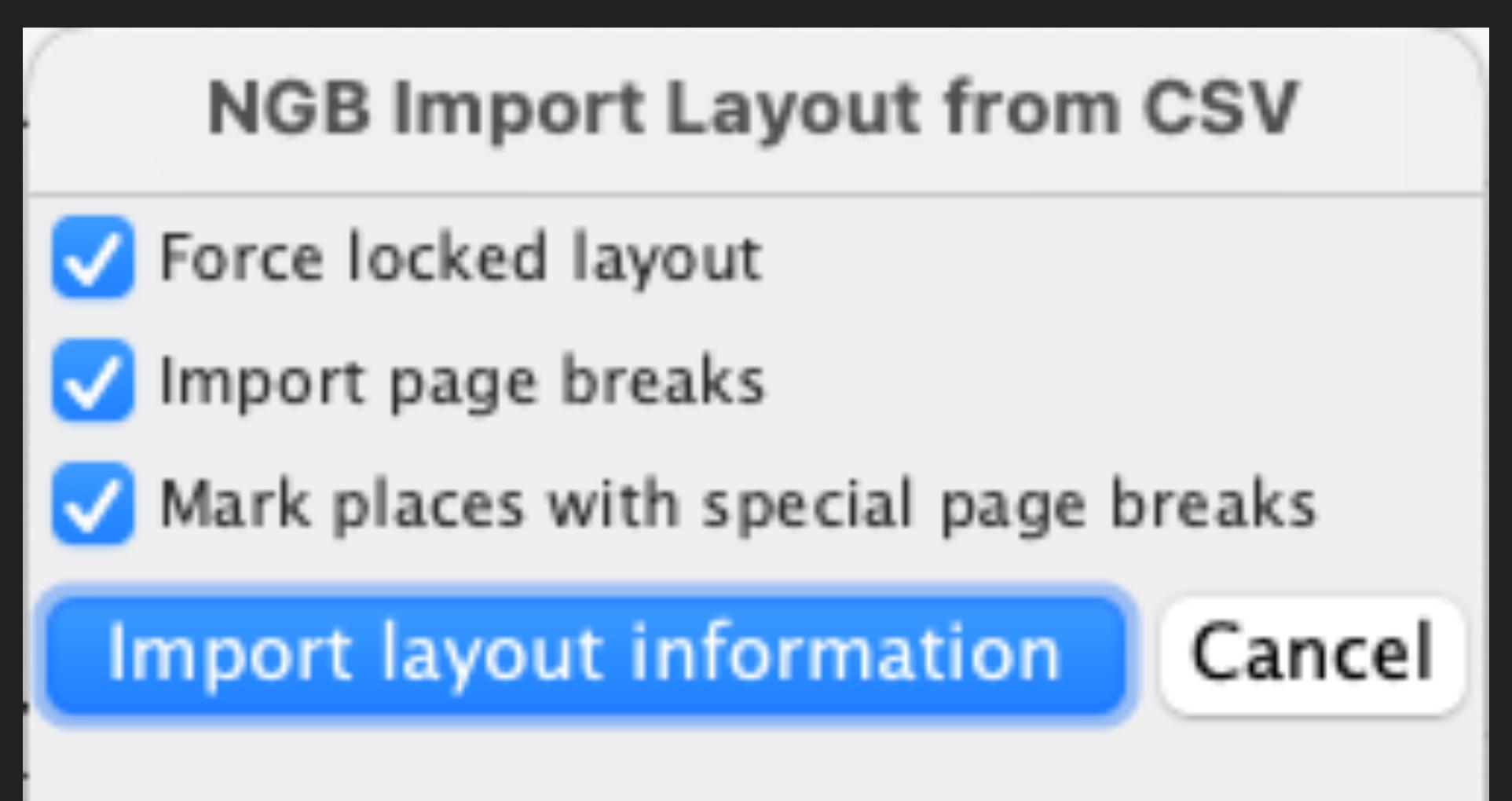
```
fingerboard.py
1  import dash
2  from dash import dcc
3  from dash import html
4  import plotly.graph_objects as go
5  from dash.dependencies import Input, Output
6
7  app = dash.Dash(__name__)
8
9  selectednotes = {'x': [], 'y': [], 'text': []}
10 class Instrument:
11     def __init__(self, num_strings, tuning, num_frets):
12         self.num_strings = num_strings
13         self.tuning = tuning
14         self.num_frets = num_frets
15
16     def draw_fingerboard(self):
17         global selectednotes
18         notes = ['C', 'C#', 'D', 'D#', 'E', 'F', 'F#', 'G', 'G#', 'A', 'A#',
19         'B', 'B#']
20         grid = []
21         for string in range(self.num_strings):
22             row = []
23             for fret in range(self.num_frets):
24                 row.append(None)
25             grid.append(row)
26
27         for fret in range(self.num_frets):
28             grid[0][fret] = fret
29
30         for string in range(self.num_strings):
31             tuning_note, tuning_octave = self.tuning[string][-1], int(self.
32             tuning_index = notes.index(tuning_note)
33             for fret in range(self.num_frets):
34                 note_index = (tuning_index + fret) % len(notes)
35                 note = notes[note_index]
36                 octave = tuning_octave + (tuning_index + fret) // len(notes)
37                 grid[string][fret] = f'{note}{octave}'
38
39         scale_length = 25.5 # Distance from nut to bridge in inches
40         fret_positions = [scale_length - scale_length / 2 ** (fret / 12) for
41
42         fig = go.Figure()
43         fig.update_layout(
```

PROBLEMS OUTPUT DEBUG CONSOLE TERMINAL PORTS zsh Python

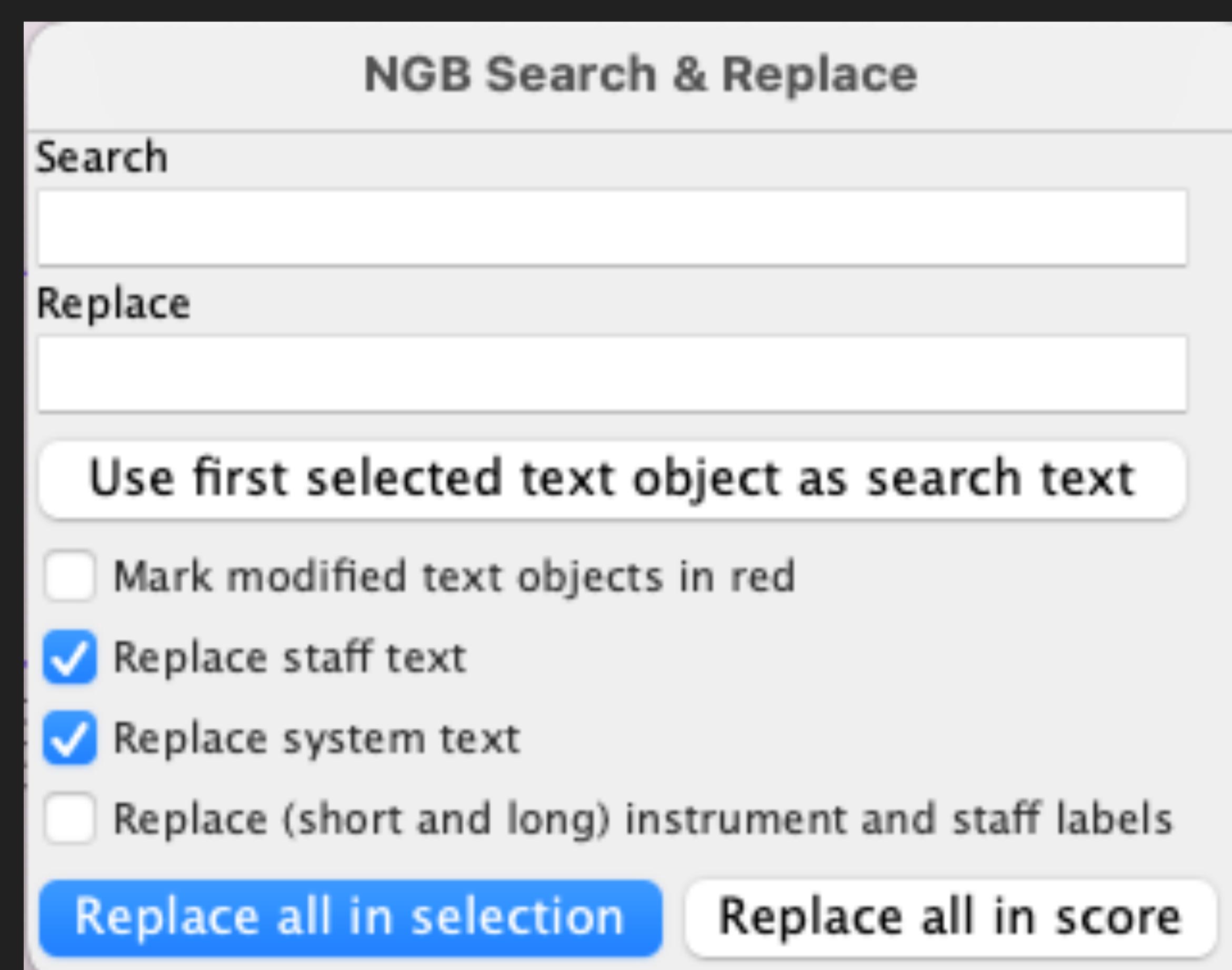
```
"/Users/parhambehzad/PycharmProjects/Compos 2/venv/bin/python" "/Users/parhambehzad/.zshrc:1: module_init: function definition file not found
o (venv) (base) parhambehzad@B Compos 2 % "/Users/parhambehzad/PycharmProjects/Compos 2/venv/bin/python" "/Users/parhambehzad/PycharmProjects/compos 2/fingerboard.py"
Dash is running on http://127.0.0.1:8050/
* Serving Flask app 'fingerboard'
* Debug mode: on
```

Reader Optimized | In 84, Col 30 | Spaces: 4 | UTF-8 | F (1 Python 3.8.3 (venv)) | P

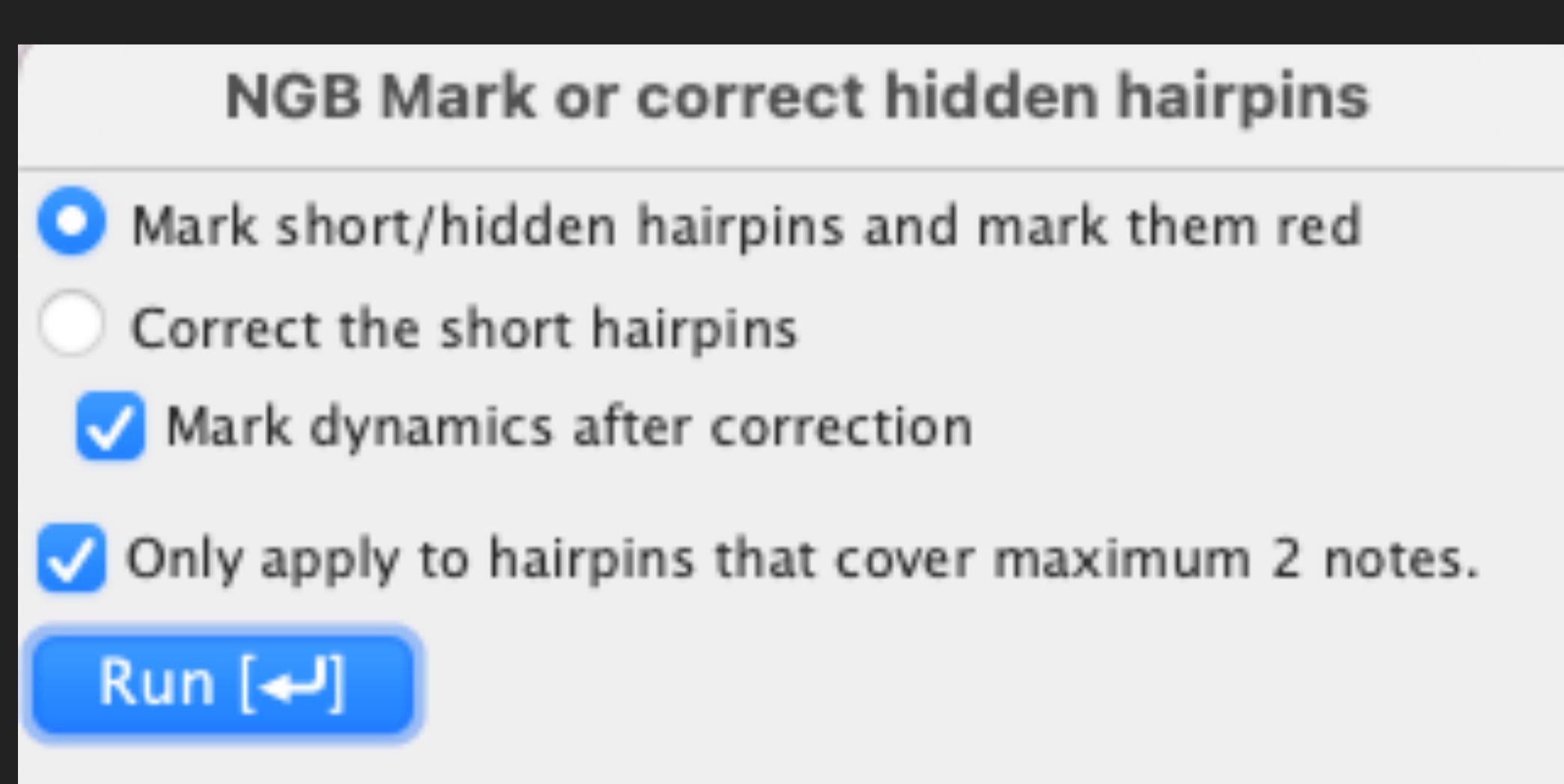
Sibelius® Plugins - (selected)



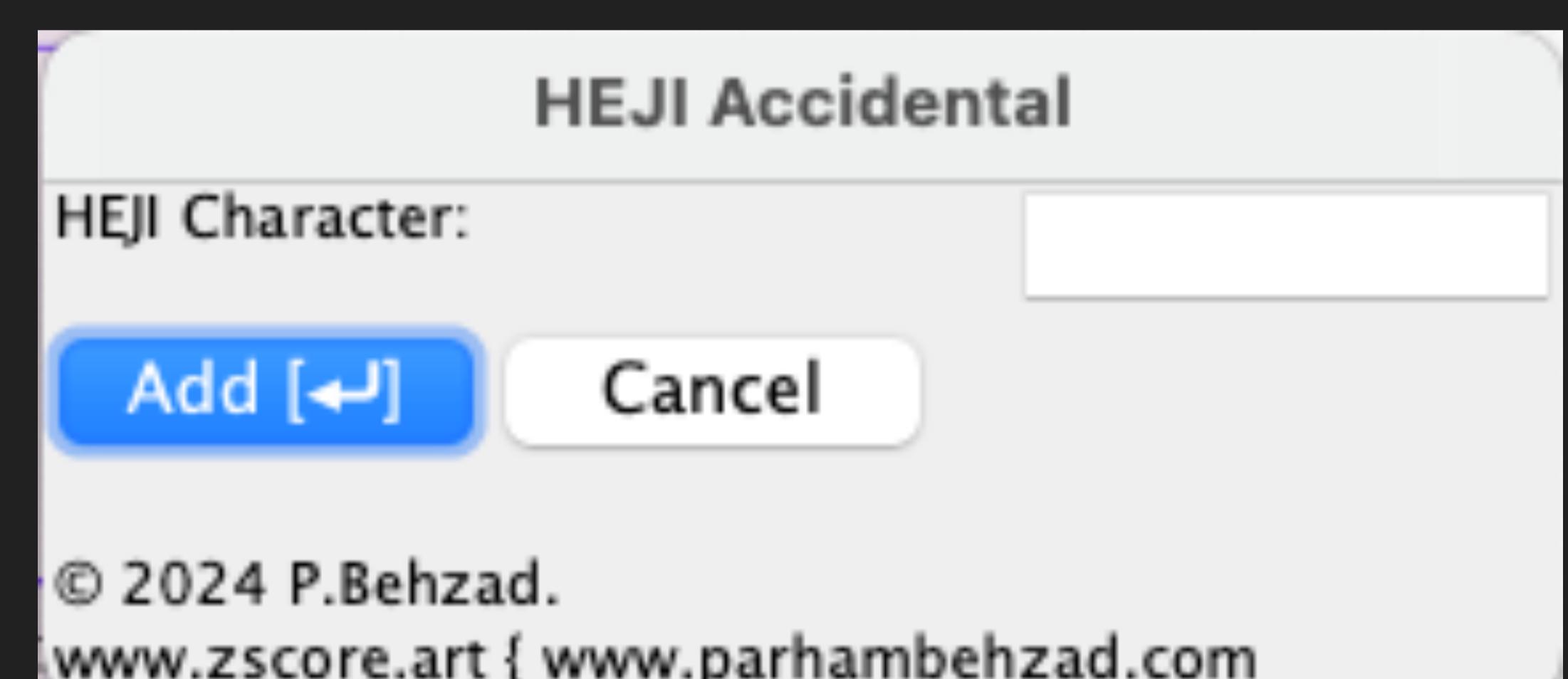
Importing layout from another score and force it to the current score



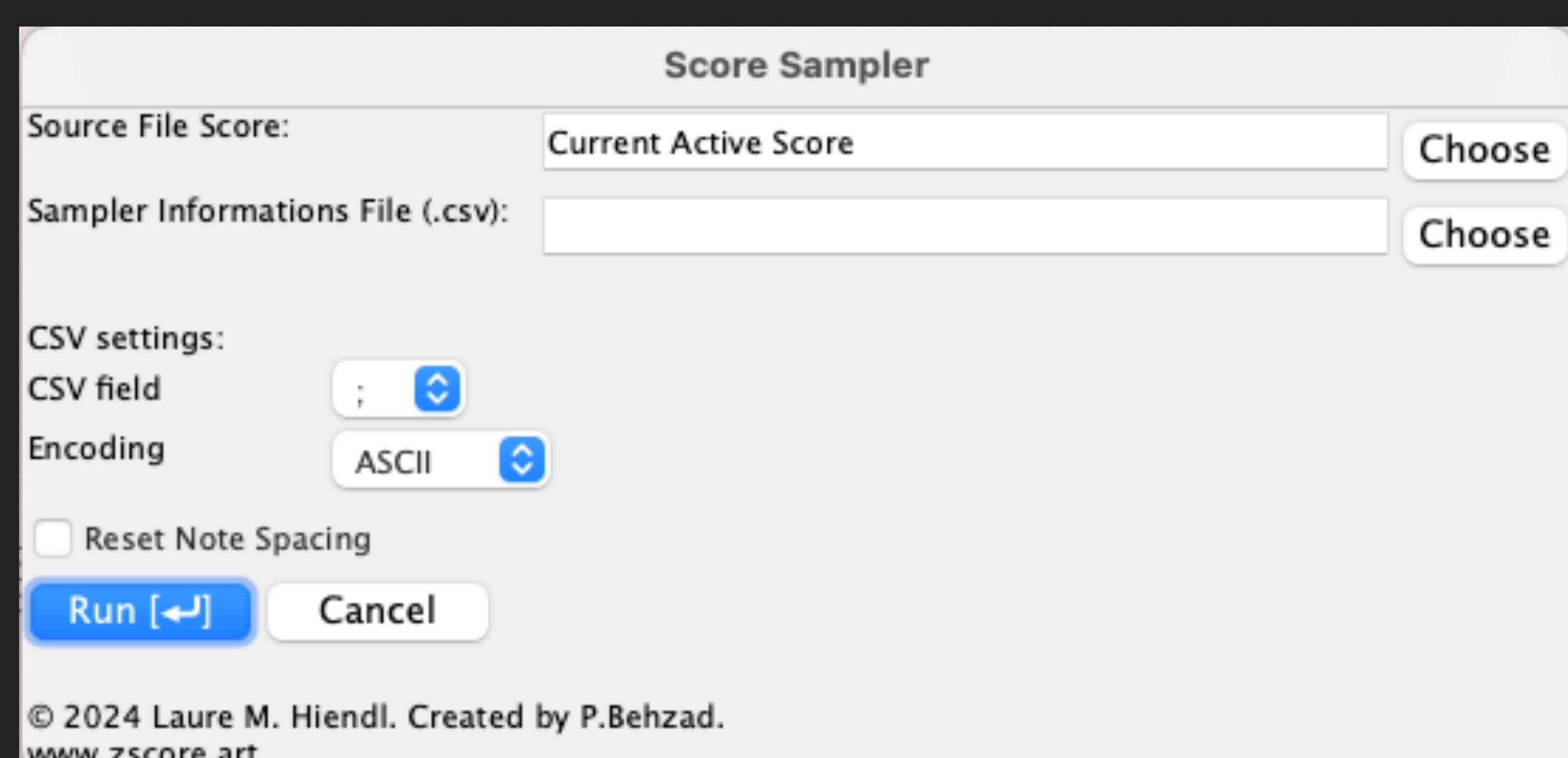
Simple find and replace for any text object in the score



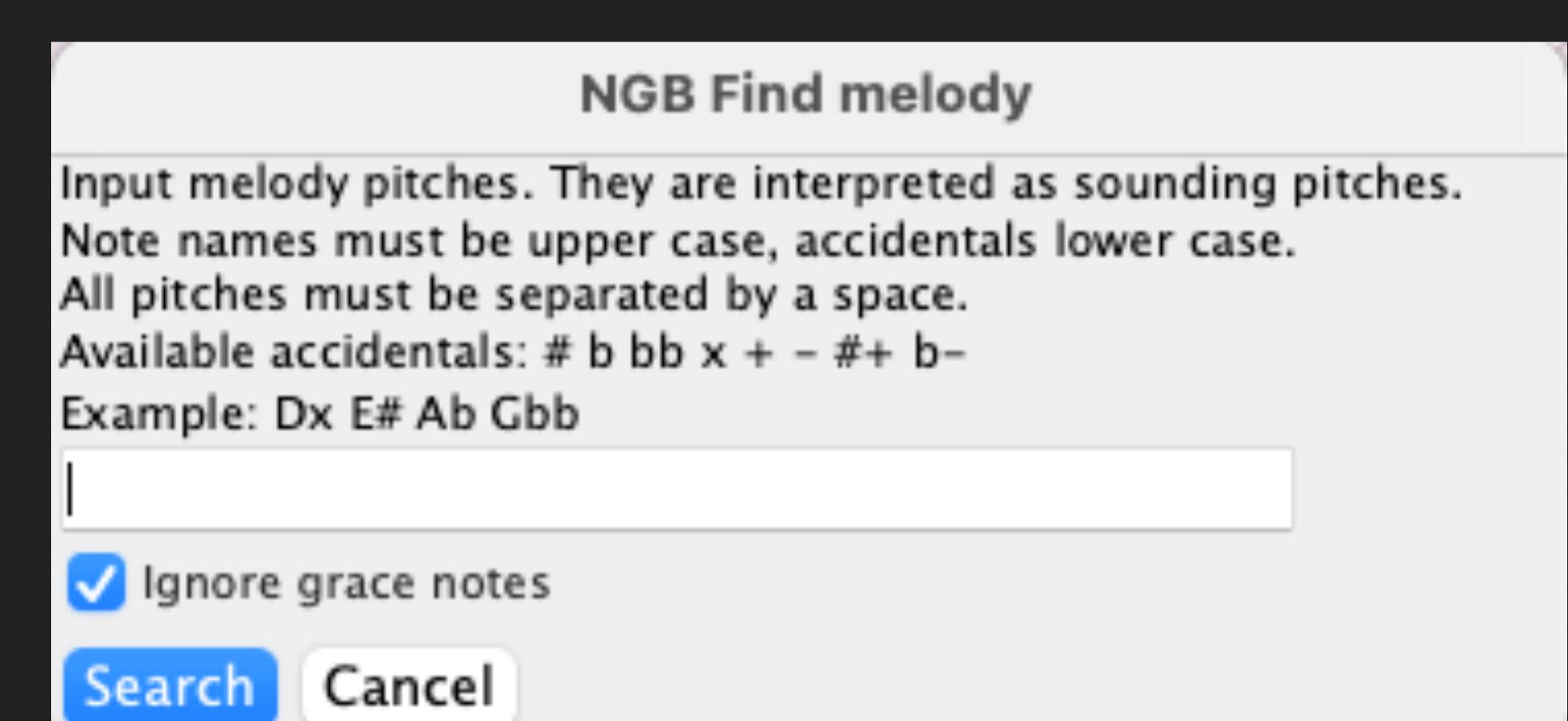
Correcting bad hairpins



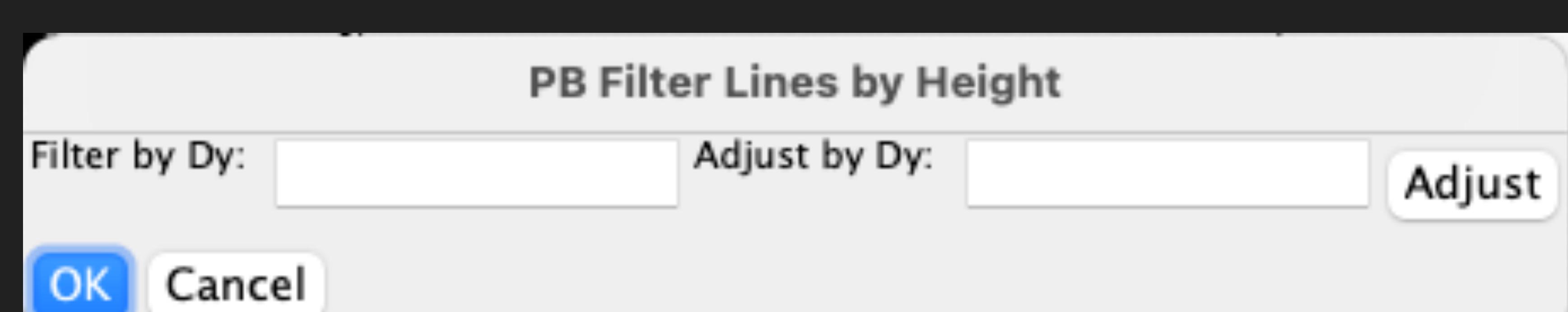
Adding variety of microtonal accidentals (HEJI) to notes in the fastest way possible.



Commissioned by composer Dr. Laure M. Hiendl for his own compositions



A Find function for melodies



Filter Lines by their hight



about him

Parham is a multidisciplinary composer, sound engineer, audio programmer, and software developer with a deep passion for music and technology. He is currently pursuing his master's degree in Composition at the Mozarteum University in Salzburg, Austria.

Beyond composition, Parham has extensive experience in music engraving, score editing, and sound engineering. He has worked as a piano teacher, a music engraver, and a sound engineer for various projects and concerts, handling electronic sound operations. Currently, he works at Notengrafik in Berlin, specializing in score editing and engraving. His expertise extends to developing automation software and plug-ins that assist editors and engravers in efficiently handling large-scale music scores—minimizing manual labor while enhancing precision and engraving quality.

When he's not immersed in his work, Parham dedicates his time to composing, expanding his musical explorations, and, of course, enjoying a good cup of coffee.

educations

Master of Music - Composition

Universität Mozarteum Salzburg, Austria (2024 - present)
prof. Dr. Laure M. Hiendl

Bachelor of Music - Composition

Barenboimsaid-Akademie Berlin, Germany (2019 - 2023)
prof. Stephan Winkler, prof. Jörg Widmann

Bachelor of Arts - Piano

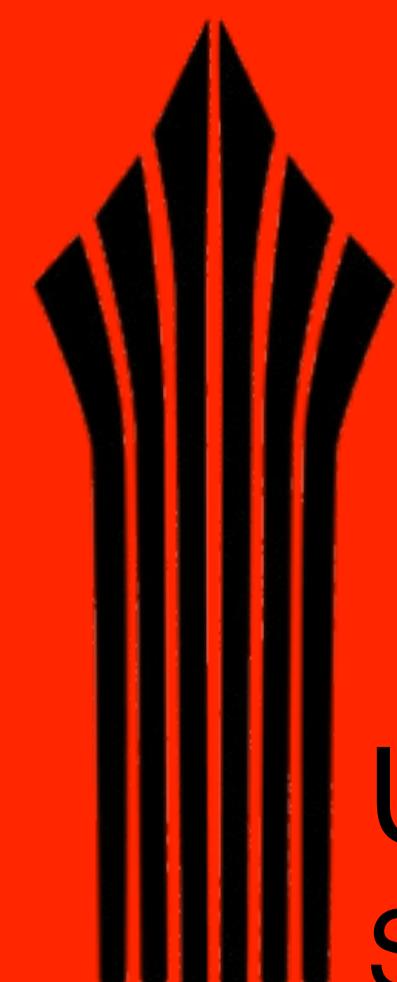
University of Applied Science and Technology, Tehran, Iran (2016 - 2019)
prof. Martyna Kosecka

Bachelor of Science - Computer Science

Babol Noshirvani University of Technology - Babol, Iran (2012 - 2016)



**BARENBOIM-SAID
AKADEMIE**



University of Applied
Science and Technology



BABOL NOSHIRVANI
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