

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

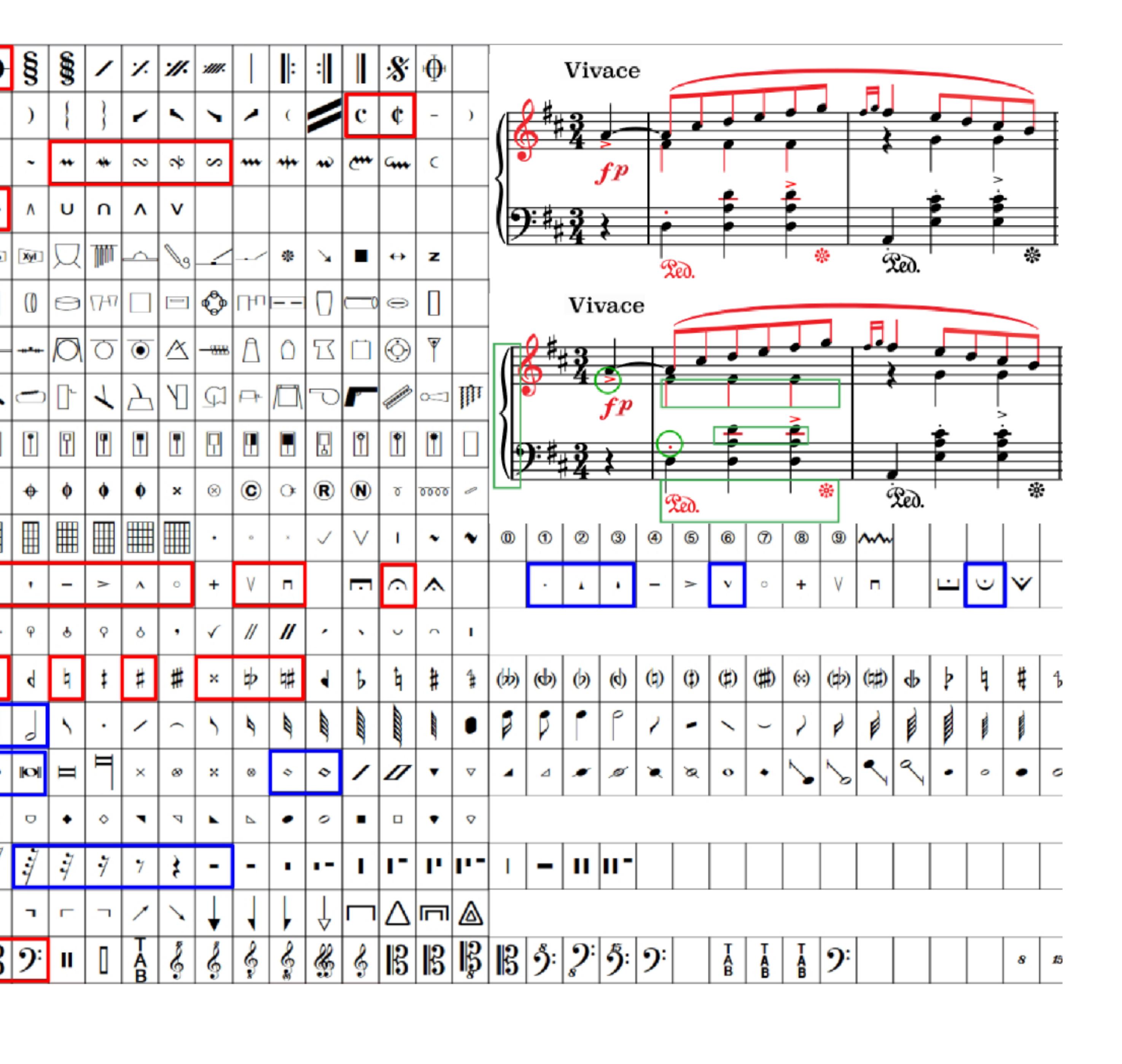


PARHAM
BEHZAD

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 dynamics and performance techniques, with specific note values and fingerings indicated.

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

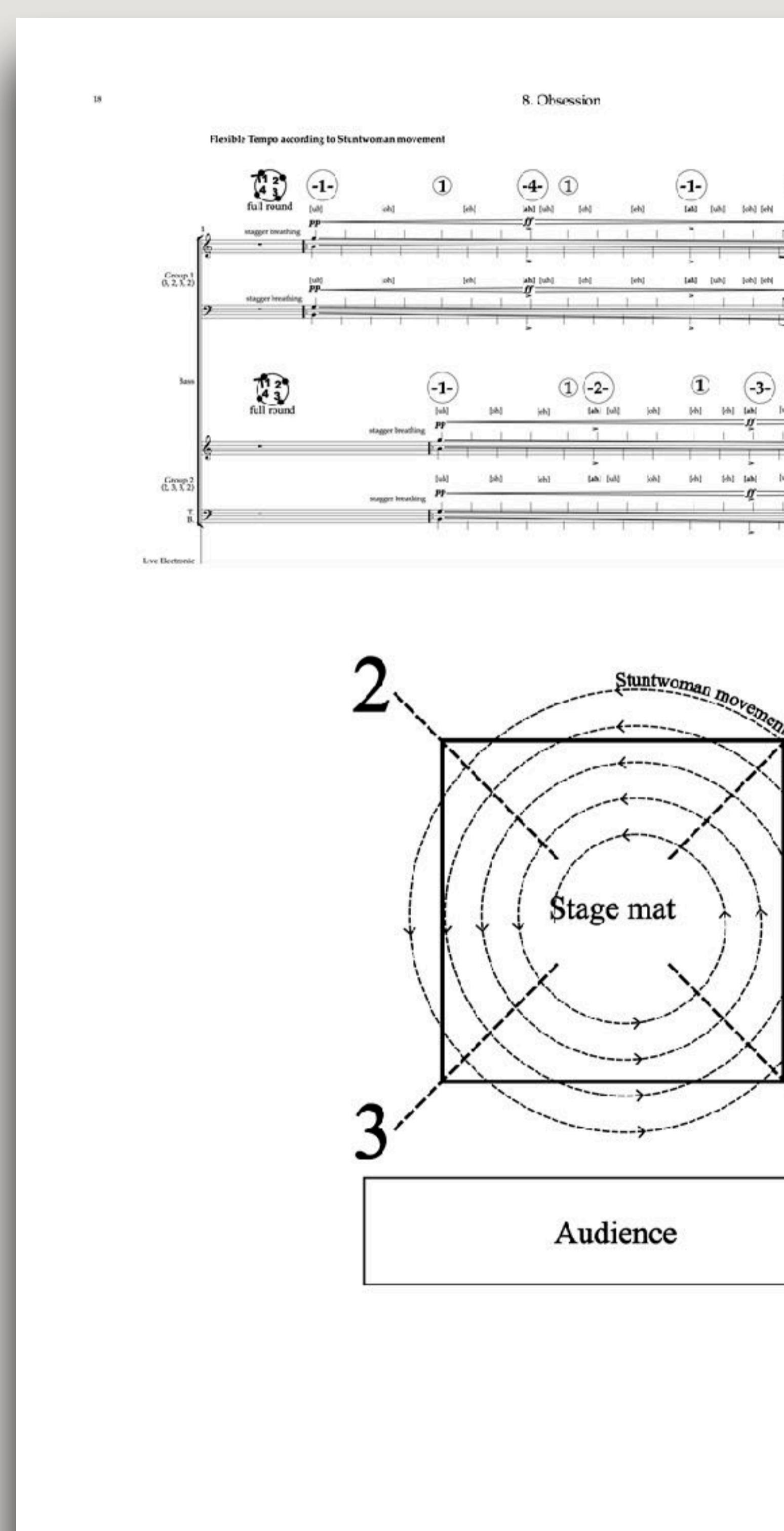
Philippe Manoury

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 musical score page for orchestra and choir. The page is filled with multiple staves of music for various instruments, including strings (Violin I, Violin II, Viola, Cello), brass (Trombone, Bassoon), woodwinds (Oboe, Clarinet, Bassoon), and percussion (Drum). The score includes dynamic markings such as *ff* (fortissimo), *p* (pianissimo), and *mp* (mezzo-pianissimo). The vocal parts for 'Choir' (Soprano, Alto, Tenor, Bass) are also present. The page is numbered 'B 1' at the top left and '7' at the top right.

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, Tpt1, Drb1	H2, Ob2, Bcl2, Tpt2, Drb2	Cbrn1, Hn1, To	Cbrn2, Hn2					
Credit	Soprano	Alto	Tenor	Bass					
Strings	I=1+1+1=1	I=1+1+1=1	I=1+2+1=2	2+1+2=1+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	Cbrn2	Ob1	D1	Tpt1	Vln1,1	Cbrn1	B, Tbn	Vln1,1	Vln1,2
G2	I=1+1+1=1	Hn1,1	Hn1,2	Vln1,2	Vln1,3	Vln1,2	Vln1,3	Vln1,4	Vln1,5
G3	I=1+1+1=1	Hn1,2	Hn1,3	Vln1,3	Vln1,4	Vln1,3	Vln1,4	Vln1,5	Vln1,6
G4	I=1+1+1=1	Hn1,3	Hn1,4	Vln1,4	Vln1,5	Vln1,4	Vln1,5	Vln1,6	Vln1,7
G5	I=1+1+1=1	Hn1,4	Hn1,5	Vln1,5	Vln1,6	Vln1,5	Vln1,6	Vln1,7	Vln1,8
G6	I=1+1+1=1	Hn1,5	Hn1,6	Vln1,6	Vln1,7	Vln1,6	Vln1,7	Vln1,8	Vln1,9
G7	I=1+1+1=1	Hn1,6	Hn1,7	Vln1,7	Vln1,8	Vln1,7	Vln1,8	Vln1,9	Vln1,10
G8	I=1+1+1=1	Hn1,7	Hn1,8	Vln1,8	Vln1,9	Vln1,8	Vln1,9	Vln1,10	Vln1,11
G9	I=1+1+1=1	Hn1,8	Hn1,9	Vln1,9	Vln1,10	Vln1,9	Vln1,10	Vln1,11	Vln1,12
G10	I=1+1+1=1	Hn1,9	Hn1,10	Vln1,10	Vln1,11	Vln1,10	Vln1,11	Vln1,12	Vln1,13
G11	I=1+1+1=1	Hn1,10	Hn1,11	Vln1,11	Vln1,12	Vln1,11	Vln1,12	Vln1,13	Vln1,14
G12	I=1+1+1=1	Hn1,11	Hn1,12	Vln1,12	Vln1,13	Vln1,12	Vln1,13	Vln1,14	Vln1,15
G13	I=1+1+1=1	Hn1,12	Hn1,13	Vln1,13	Vln1,14	Vln1,13	Vln1,14	Vln1,15	Vln1,16
G14	I=1+1+1=1	Hn1,13	Hn1,14	Vln1,14	Vln1,15	Vln1,14	Vln1,15	Vln1,16	Vln1,17
G15	I=1+1+1=1	Hn1,14	Hn1,15	Vln1,15	Vln1,16	Vln1,15	Vln1,16	Vln1,17	Vln1,18
G16	I=1+1+1=1	Hn1,15	Hn1,16	Vln1,16	Vln1,17	Vln1,16	Vln1,17	Vln1,18	Vln1,19
G17	I=1+1+1=1	Hn1,16	Hn1,17	Vln1,17	Vln1,18	Vln1,17	Vln1,18	Vln1,19	Vln1,20
G18	I=1+1+1=1	Hn1,17	Hn1,18	Vln1,18	Vln1,19	Vln1,18	Vln1,19	Vln1,20	Vln1,21
G19	I=1+1+1=1	Hn1,18	Hn1,19	Vln1,19	Vln1,20	Vln1,19	Vln1,20	Vln1,21	Vln1,22
G20	I=1+1+1=1	Hn1,19	Hn1,20	Vln1,20	Vln1,21	Vln1,20	Vln1,21	Vln1,22	Vln1,23
G21	I=1+1+1=1	Hn1,20	Hn1,21	Vln1,21	Vln1,22	Vln1,20	Vln1,21	Vln1,22	Vln1,23
G22	I=1+1+1=1	Hn1,21	Hn1,22	Vln1,22	Vln1,23	Vln1,21	Vln1,22	Vln1,23	Vln1,24
G23	I=1+1+1=1	Hn1,22	Hn1,23	Vln1,23	Vln1,24	Vln1,22	Vln1,23	Vln1,24	Vln1,25
G24	I=1+1+1=1	Hn1,23	Hn1,24	Vln1,24	Vln1,25	Vln1,23	Vln1,24	Vln1,25	Vln1,26
G25	I=1+1+1=1	Hn1,24	Hn1,25	Vln1,25	Vln1,26	Vln1,24	Vln1,25	Vln1,26	Vln1,27
G26	I=1+1+1=1	Hn1,25	Hn1,26	Vln1,26	Vln1,27	Vln1,25	Vln1,26	Vln1,27	Vln1,28
G27	I=1+1+1=1	Hn1,26	Hn1,27	Vln1,27	Vln1,28	Vln1,26	Vln1,27	Vln1,28	Vln1,29
G28	I=1+1+1=1	Hn1,27	Hn1,28	Vln1,28	Vln1,29	Vln1,27	Vln1,28	Vln1,29	Vln1,30
G29	I=1+1+1=1	Hn1,28	Hn1,29	Vln1,29	Vln1,30	Vln1,28	Vln1,29	Vln1,30	Vln1,31
G30	I=1+1+1=1	Hn1,29	Hn1,30	Vln1,30	Vln1,31	Vln1,29	Vln1,30	Vln1,31	Vln1,32
G31	I=1+1+1=1	Hn1,30	Hn1,31	Vln1,31	Vln1,32	Vln1,30	Vln1,31	Vln1,32	Vln1,33
G32	I=1+1+1=1	Hn1,31	Hn1,32	Vln1,32	Vln1,33	Vln1,31	Vln1,32	Vln1,33	Vln1,34
G33	I=1+1+1=1	Hn1,32	Hn1,33	Vln1,33	Vln1,34	Vln1,32	Vln1,33	Vln1,34	Vln1,35
G34	I=1+1+1=1	Hn1,33	Hn1,34	Vln1,34	Vln1,35	Vln1,33	Vln1,34	Vln1,35	Vln1,36
G35	I=1+1+1=1	Hn1,34	Hn1,35	Vln1,35	Vln1,36	Vln1,34	Vln1,35	Vln1,36	Vln1,37
G36	I=1+1+1=1	Hn1,35	Hn1,36	Vln1,36	Vln1,37	Vln1,35	Vln1,36	Vln1,37	Vln1,38
G37	I=1+1+1=1	Hn1,36	Hn1,37	Vln1,37	Vln1,38	Vln1,36	Vln1,37	Vln1,38	Vln1,39
G38	I=1+1+1=1	Hn1,37	Hn1,38	Vln1,38	Vln1,39	Vln1,37	Vln1,38	Vln1,39	Vln1,40
G39	I=1+1+1=1	Hn1,38	Hn1,39	Vln1,39	Vln1,40	Vln1,38	Vln1,39	Vln1,40	Vln1,41
G40	I=1+1+1=1	Hn1,39	Hn1,40	Vln1,40	Vln1,41	Vln1,39	Vln1,40	Vln1,41	Vln1,42
G41	I=1+1+1=1	Hn1,40	Hn1,41	Vln1,41	Vln1,42	Vln1,40	Vln1,41	Vln1,42	Vln1,43
G42	I=1+1+1=1	Hn1,41	Hn1,42	Vln1,42	Vln1,43	Vln1,41	Vln1,42	Vln1,43	Vln1,44
G43	I=1+1+1=1	Hn1,42	Hn1,43	Vln1,43	Vln1,44	Vln1,42	Vln1,43	Vln1,44	Vln1,45
G44	I=1+1+1=1	Hn1,43	Hn1,44	Vln1,44	Vln1,45	Vln1,43	Vln1,44	Vln1,45	Vln1,46
G45	I=1+1+1=1	Hn1,44	Hn1,45	Vln1,45	Vln1,46	Vln1,44	Vln1,45	Vln1,46	Vln1,47
G46	I=1+1+1=1	Hn1,45	Hn1,46	Vln1,46	Vln1,47	Vln1,45	Vln1,46	Vln1,47	Vln1,48
G47	I=1+1+1=1	Hn1,46	Hn1,47	Vln1,47	Vln1,48	Vln1,46	Vln1,47	Vln1,48	Vln1,49
G48	I=1+1+1=1	Hn1,47	Hn1,48	Vln1,48	Vln1,49	Vln1,47	Vln1,48	Vln1,49	Vln1,50
G49	I=1+1+1=1	Hn1,48	Hn1,49	Vln1,49	Vln1,50	Vln1,48	Vln1,49	Vln1,50	Vln1,51
G50	I=1+1+1=1	Hn1,49	Hn1,50						



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.



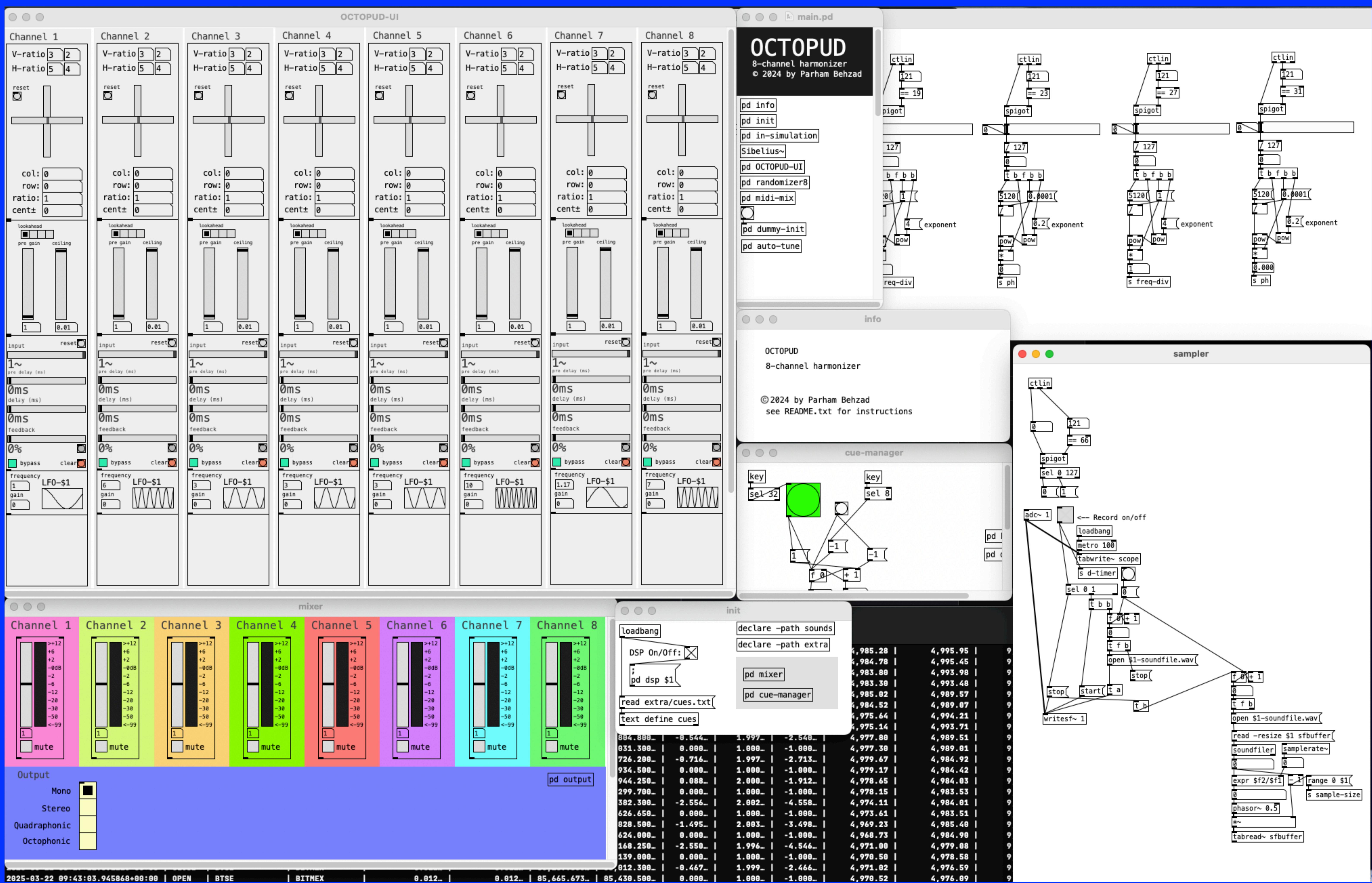


Parham Behzad's Home Studio

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.



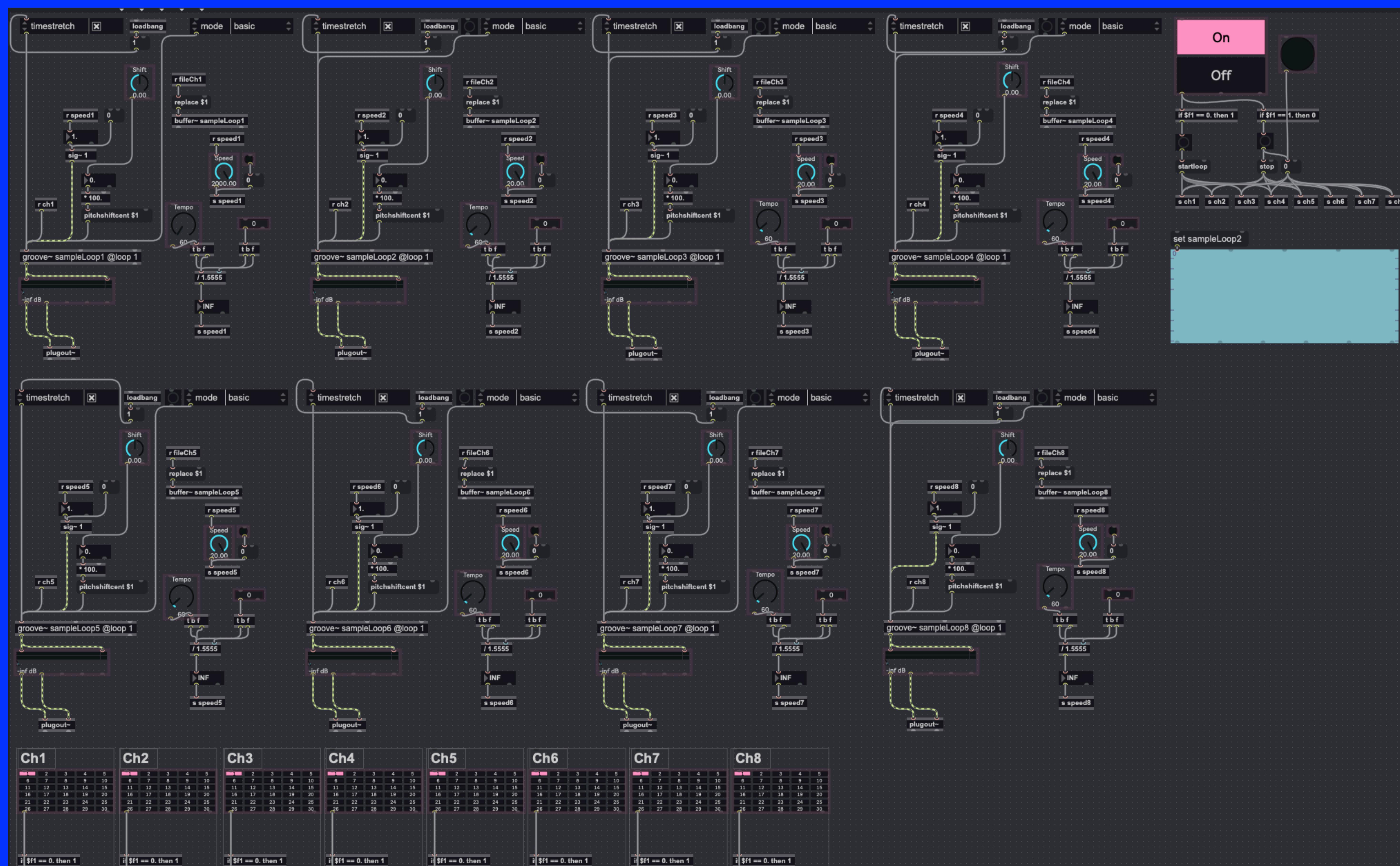
works as audio programmer



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	C5	E5	G5	C6	E6	G6	C7	E7	G7	C8	E8	G8	C9	E9	G9	C10	E10	G10			
1864.20 Hz	1330.26 Hz	+15.35¢	1662.82 Hz	+1.47¢	-12.01¢	2078.52 Hz	2598.16 Hz	3247.70 Hz	4059.62 Hz	5074.52 Hz	6343.15 Hz	7928.94 Hz	9911.18 Hz	12388.97 Hz	15486.22 Hz	18295.32 Hz	21514.16 Hz	24985.77 Hz	28565.98 Hz	32154.22 Hz			
+29.04¢	+15.35¢	+1.47¢	-12.01¢	-2.24¢	-15.93¢	-0.29¢	-13.97¢	-27.66¢	+44.97¢	+31.28¢	+19.55¢	+5.86¢	-9.78¢	-21.51¢	-35.28¢	-49.16¢	-73.15¢	-107.54¢	-141.84¢	-178.28¢			
20800000000	3869835264:4080000000	967458816:80000000	241864704:160000000	60466176:320000000	15115446:640000000	3779136:128000000	944784:256000000	236196:51200	59849:1024	295245:4896	1476225:16384	7381125:65536	36905625:262144	102515625:1048576	28508125:262144	512578125:4194384	11282175:524288	170859375:131072	61509375:524288	12301875:131072	131072		
F5	A5	C#6	F6	A6	C#7	F7	A7	C#8	F8	A8	C#9	F9	A9	C#10	F10	A10	C#11	F11	A11	C#12			
709.47 Hz	886.84 Hz	1108.55 Hz	1385.68 Hz	1752.10 Hz	2165.13 Hz	2706.41 Hz	3383.02 Hz	4228.77 Hz	5285.96 Hz	6667.45 Hz	8259.32 Hz	10324.14 Hz	12995.18 Hz	15486.22 Hz	18295.32 Hz	21514.16 Hz	24985.77 Hz	28565.98 Hz	32154.22 Hz	35855.54 Hz			
+27.68¢	+13.40¢	-0.29¢	-13.97¢	-17.87¢	-27.66¢	+44.97¢	+31.28¢	+19.55¢	+5.86¢	-9.78¢	-21.51¢	-35.28¢	-49.16¢	-73.15¢	-107.54¢	-141.84¢	-178.28¢	-215.46¢	-247.73¢	-285.00¢			
64	+27.68¢	+13.40¢	-0.29¢	-13.97¢	-27.66¢	+44.97¢	+31.28¢	+19.55¢	+5.86¢	-9.78¢	-21.51¢	-35.28¢	-49.16¢	-73.15¢	-107.54¢	-141.84¢	-178.28¢	-215.46¢	-247.73¢	-285.00¢			
0000000000	128994588:2000000000	322486272:400000000	88621568:800000000	20155392:160000000	5038848:320000000	1259712:640000000	314928:128000000	78732:256000000	19683:51200	98415:2048	492075:8192	2466375:32768	12301875:131072	61509375:524288	102515625:1048576	28508125:262144	512578125:4194384	11282175:524288	170859375:131072	61509375:524288	12301875:131072	131072	
A#4	D5	F#5	A#5	D6	F#6	A#6	D7	F#7	A#8	D8	F#8	A#9	D9	F#9	A#10	D10	F#10	A#11	D#11	F#11			
472.95 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	5566.21 Hz	6882.76 Hz	8683.45 Hz	10754.32 Hz	13462.98 Hz	164025.4096	1808625.65536	20508125:262144	28508125:262144	31471875:524288	35865375:131072		
+25.14¢	+11.44¢	-2.24¢	-15.93¢	-29.62¢	-43.30¢	+43.01¢	+29.33¢	+15.64¢	+1.95¢	-11.73¢	-25.42¢	-39.11¢	+47.21¢	+33.52¢	+19.84¢	+4.28¢	+31.57¢	+45.25¢	+49.16¢	+53.10¢			
5000000000	429981696:1080000000	167495424:260000000	26873856:400000000	6718646:800000000	167916:160000000	419964:320000000	104976:640000000	26244:128000000	6561:256000000	328085:102400000	164025:4096	8209125:16384	4100625:65536	20508125:262144	28508125:262144	31471875:524288	35865375:131072	3865375:131072	42715625:4194384	4714383			
B6	B6	B6	D5	B5	D6	F#6	A#6	D7	F#7	A#8	D8	F#8	A#9	D9	F#9	A#10	D#10	F#10	A#11	D#11			
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	112821.41 Hz	+17.88¢	+4.28¢	+19.84¢				
+23.16¢	+9.47¢	-4.19¢	-6.17¢	-10.83¢	-13.52¢	-19.49¢	-27.22¢	+41.06¢	+27.37¢	+13.68¢	-0.86¢	-13.49¢	-27.37¢	-41.96¢	-57.15¢	-73.15¢	-89.11¢	-107.54¢	-125.46¢	-143.34¢			
5000000000	143327232:5000000000	35831808:1000000000	8957952:2000000000	2239488:4000000000	559872:8000000000	1399848:1600000000	34992:3200000000	8748:6400000000	19395:5120000000	56475:2048000000	18225:1024000000	91215:4096	1366975:32768	1273375:8192	1566975:32768	1636975:32768	1836975:32768	2036975:32768	2278125:65536	2471875:524288	284296875:131072	3471875:131072	35865375:131072
G#5	C4	E4	G#4	C5	E5	G5	C6	E6	G#6	C7	E7	G#7	C8	E8	G#8	C9	E9	G#9	C10	E10	G#10		
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	3823.76 Hz	4597.62 Hz	5375.44 Hz	6151.93 Hz	6926.28 Hz	7694.88 Hz	8461.93 Hz	9239.54 Hz			
+21.24¢	+7.59¢	-6.17¢	-19.82¢	-33.52¢	-47.22¢	+39.10¢	+25.41¢	+11.73¢	-1.95¢	-15.64¢	-23.48¢	-35.56¢	-43.61¢	-51.71¢	-59.84¢	-67.98¢	-76.11¢	-84.24¢	-92.38¢	-100.51¢			
2500000000	4777574:1250000000	1194393:1250000000	2985984:1250000000	764696:2000000000	186624:4000000000	46656:8000000000	11664:1600000000	2916:3200000000	729:64	3645:128	18225:1024000000	91215:4096	45625:16384	10125:16384	1265625:65536	1399848:1600000000	1566975:32768	170859375:131072	1836975:32768	2036975:32768	2278125:65536	2471875:524288	
C#5	F#5	A5	C#6	F#6	A6	C#7	F#7	A7	C#8	F#8	A8	C#9	F#9	A9	C#10	F#10	A#11	D#11	F#11	A#12	D#12		
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	4787.85 Hz	5586.44 Hz	6386.44 Hz	7169.54 Hz	7961.93 Hz			
+19.28¢	+5.62¢	-8.11¢	-21.78¢	-35.49¢	-49.17¢	+37.15¢	+23.45¢	+9.77¢	-3.91¢	-17.69¢	-31.29¢	-44.97¢	-51.54¢	-64.21¢	-71.88¢	-79.55¢	-87.22¢	-94.89¢	-102.56¢	-110.23¢			
2500000000	15925246:1250000000	3981312:3125000000	995328:5000000000	248832:1000000000	62208:2600000000	15552:4096000000	3888:8000000000	972:1600000000	243:3200000000	1215:128	6075:512	30375:2048000000	151875:8192	170859375:131072	1836975:32768	2036975:32768	2278125:65536	2471875:524288	284296875:131072	3471875:131072	35865375:131072	42715625:4194384	
F#5	A#5	D5	F#6	A#6	D6	F#7	A#8	D8	F#8	A#9	D9	F#9	A#10	D#10	F#10	A#11	D#11	F#11	A#12	D#12			
93.43 Hz	115.79 Hz	145.98 Hz	182.48 Hz	228.10 Hz	285.12 Hz	356.40 Hz	445.59 Hz	556.88 Hz	696.99 Hz	878.12 Hz	1087.65 Hz	1359.56 Hz	1699.45 Hz	2124.31 Hz	2655.39 Hz	3319.23 Hz	4149.17 Hz	5019					

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 interface with two main panes. The left pane displays the code for `fingerboard.py`, which defines a class `Instrument` for a guitar fingerboard. The right pane shows a web browser at `127.0.0.1:8050` displaying a 24-fret guitar fingerboard diagram. The browser window has tabs for `fingerboard.py`, `test.py`, `harmonics.py`, and `testtt.py`. Below the browser is a terminal window showing the command to run the application and its output.

```
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         grid = []
20         for string in range(self.num_strings):
21             row = []
22             for fret in range(self.num_frets):
23                 row.append(None)
24             grid.append(row)
25
26         for fret in range(self.num_frets):
27             grid[0][fret] = fret
28
29         for string in range(self.num_strings):
30             tuning_note, tuning_octave = self.tuning[string][-1], int(self.
31             tuning_index = notes.index(tuning_note)
32             for fret in range(self.num_frets):
33                 note_index = (tuning_index + fret) % len(notes)
34                 note = notes[note_index]
35                 octave = tuning_octave + (tuning_index + fret) // len(notes)
36                 grid[string][fret] = f"{note}{octave}"
37
38         scale_length = 25.5 # Distance from nut to bridge in inches
39         fret_positions = [scale_length - scale_length / 2 ** (fret / 12) for
40
41         fig = go.Figure()
42         fig.update_layout(
```

PROBLEMS OUTPUT DEBUG CONSOLE TERMINAL PORTS

/Users/parhambehzad/PycharmProjects/Composs 2/venv/bin/python "/Users/parhambehzad/PycharmProjects/Composs 2/fingerboard.py" Follow link (cmd + click)

"/Users/parhambehzad/.zshrc:1: module_init: function definition file not found

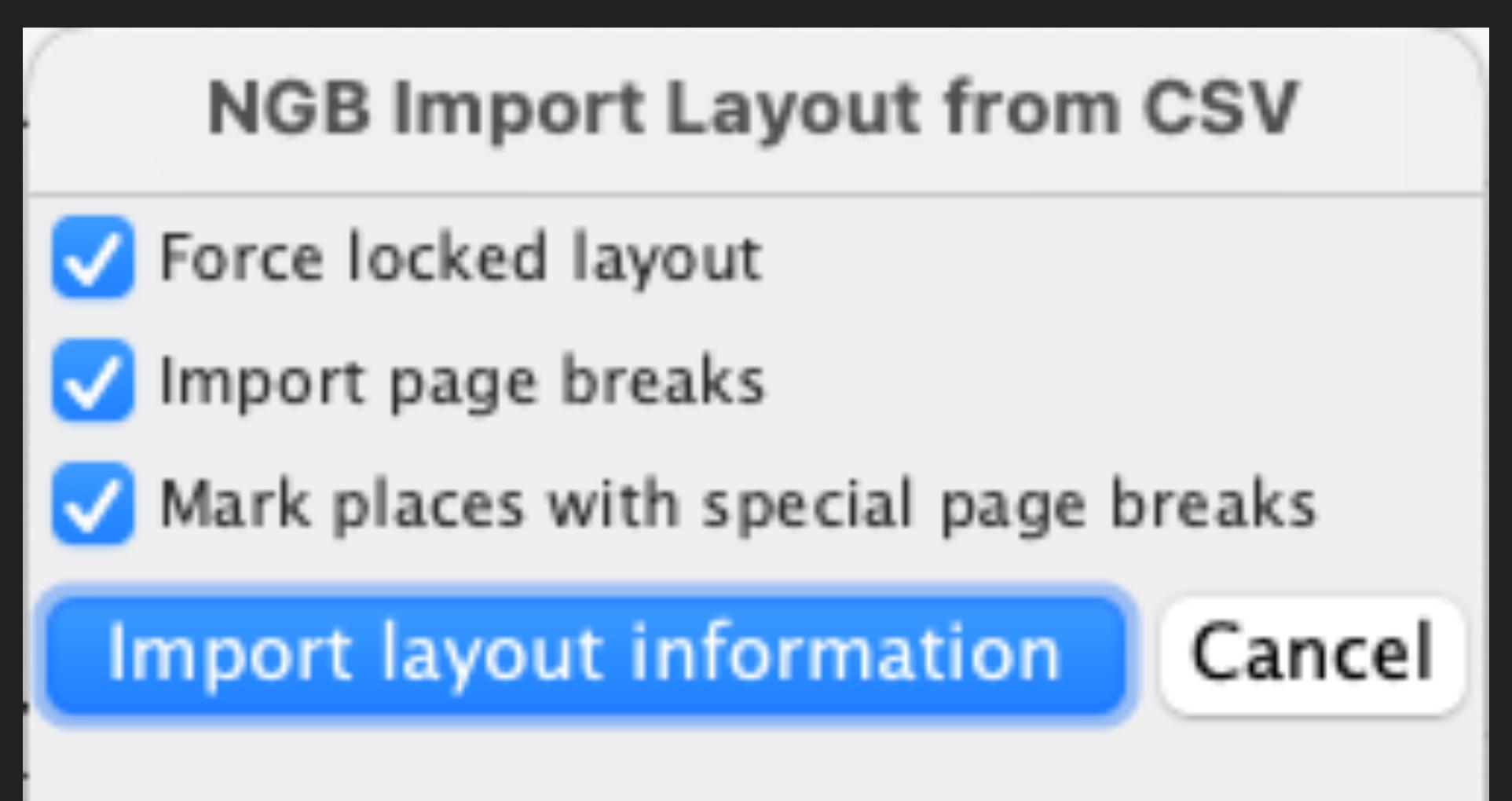
(venv) (base) parhambehzad@PB Composs 2 % "/Users/parhambehzad/PycharmProjects/Composs 2/venv/bin/python" "/Users/parhambehzad/PycharmProjects/Composs 2/fingerboard.py"

Dash is running on http://127.0.0.1:8050/

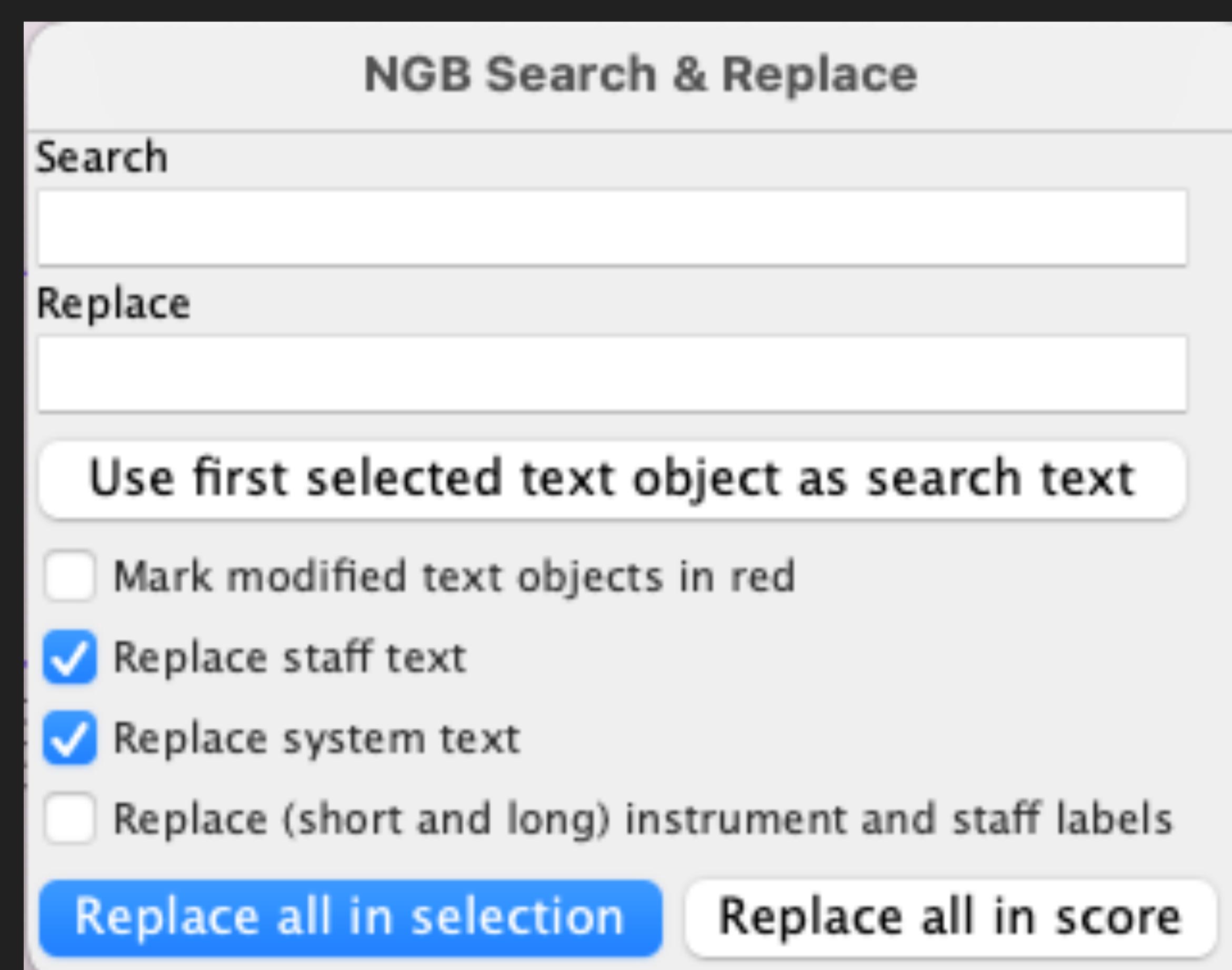
* Serving Flask app 'fingerboard'

* Debug mode: on

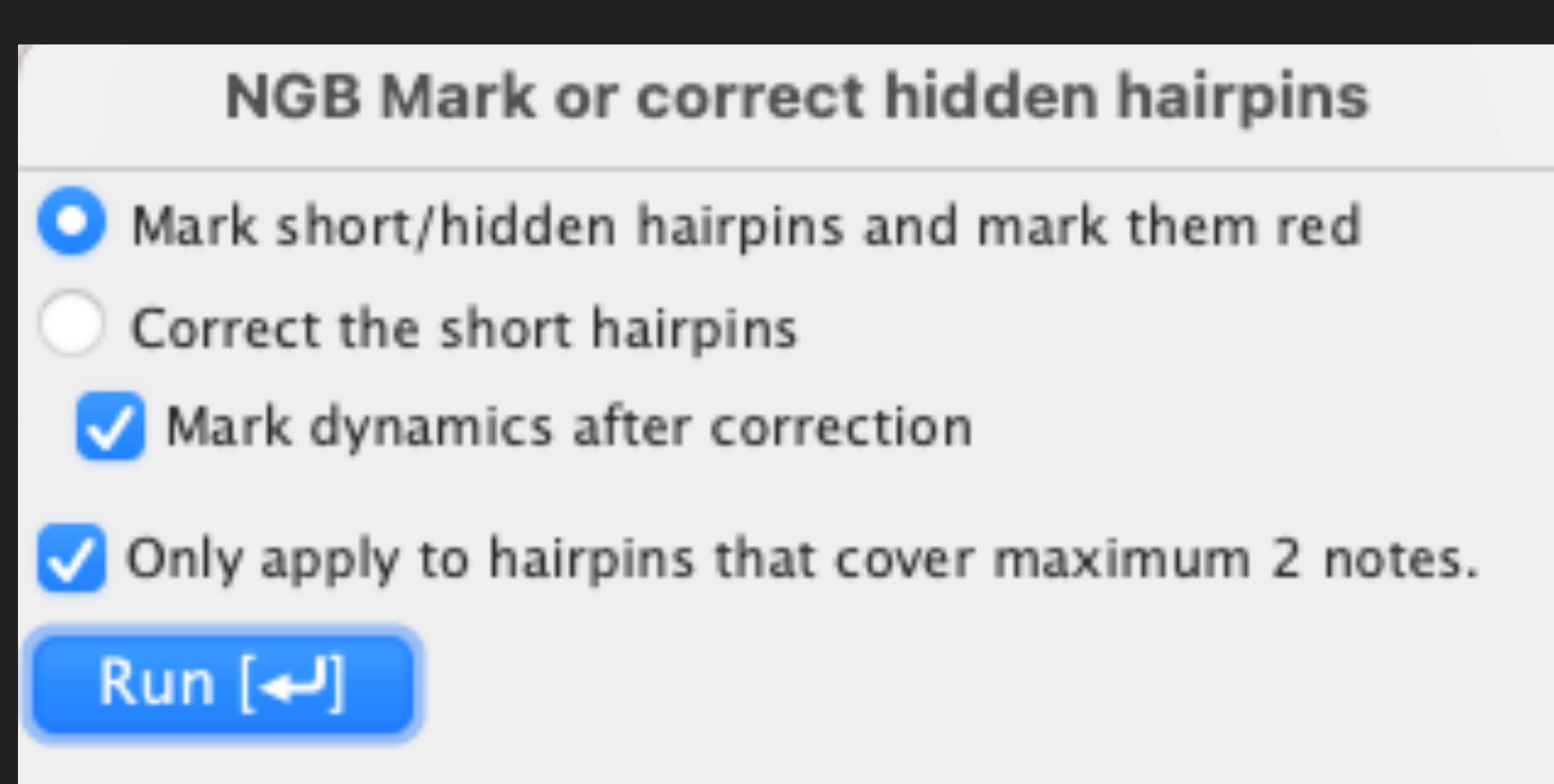
Sibelius® Plugins - (selected)



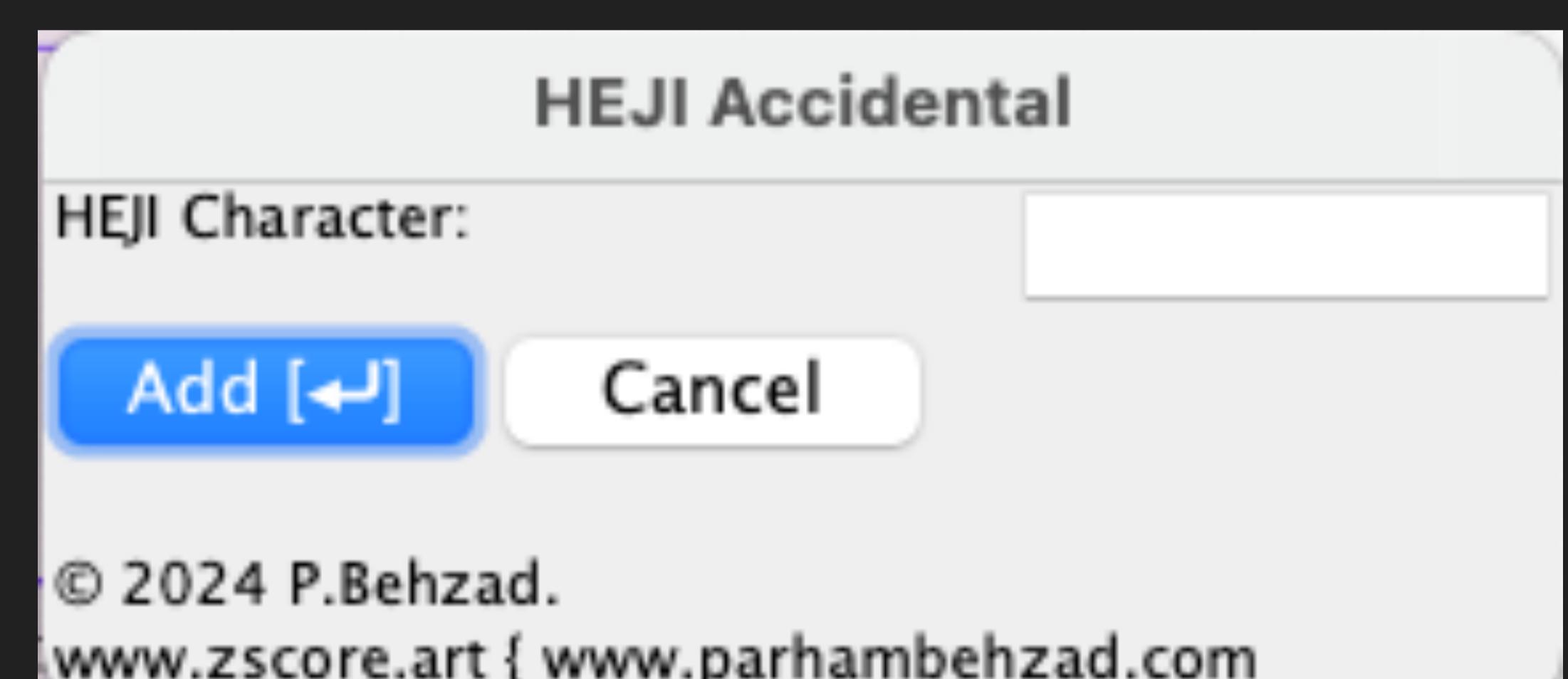
Importing layout from another score and force it to the current score



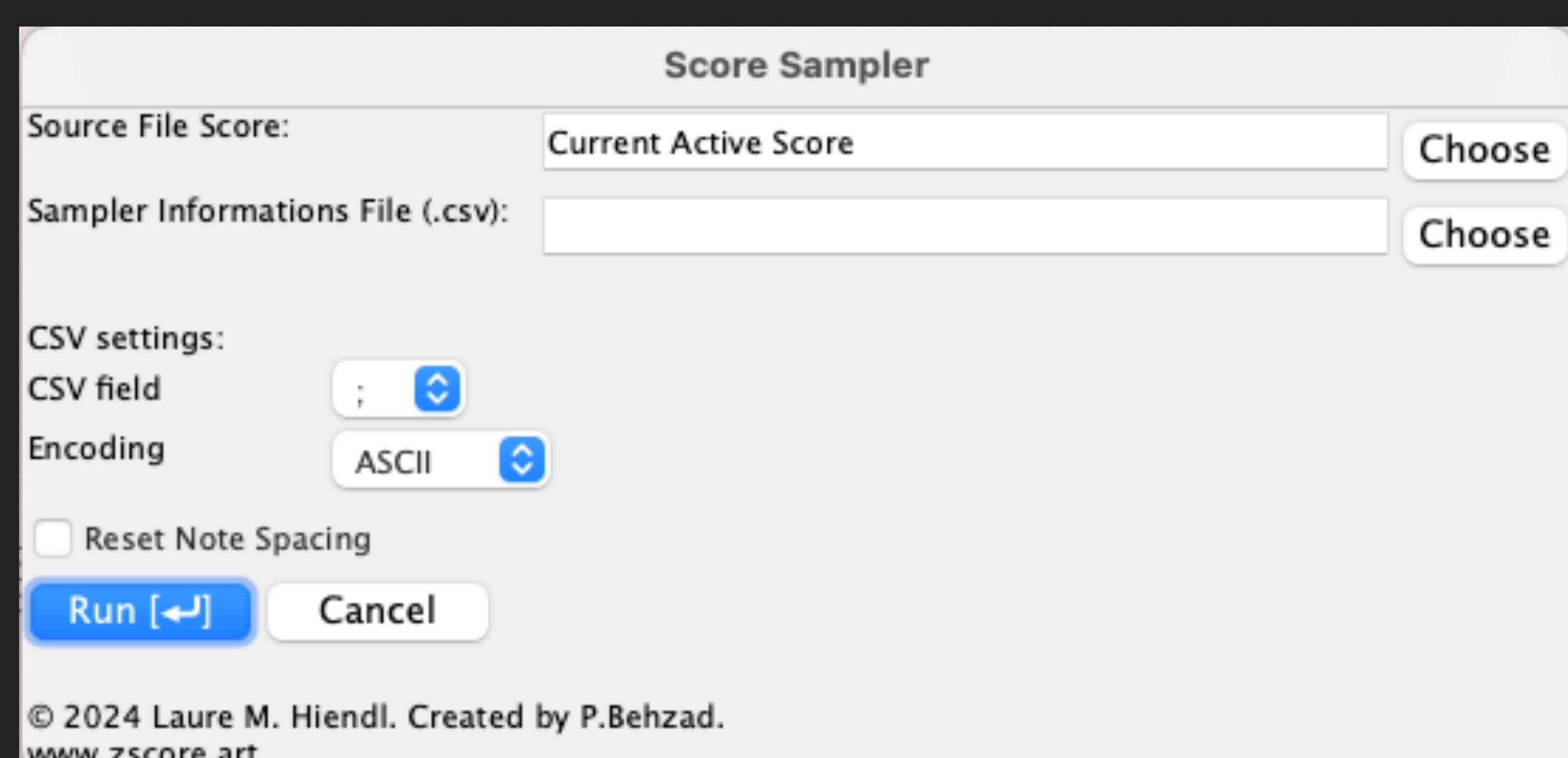
Simple find and replace for any text object in the score



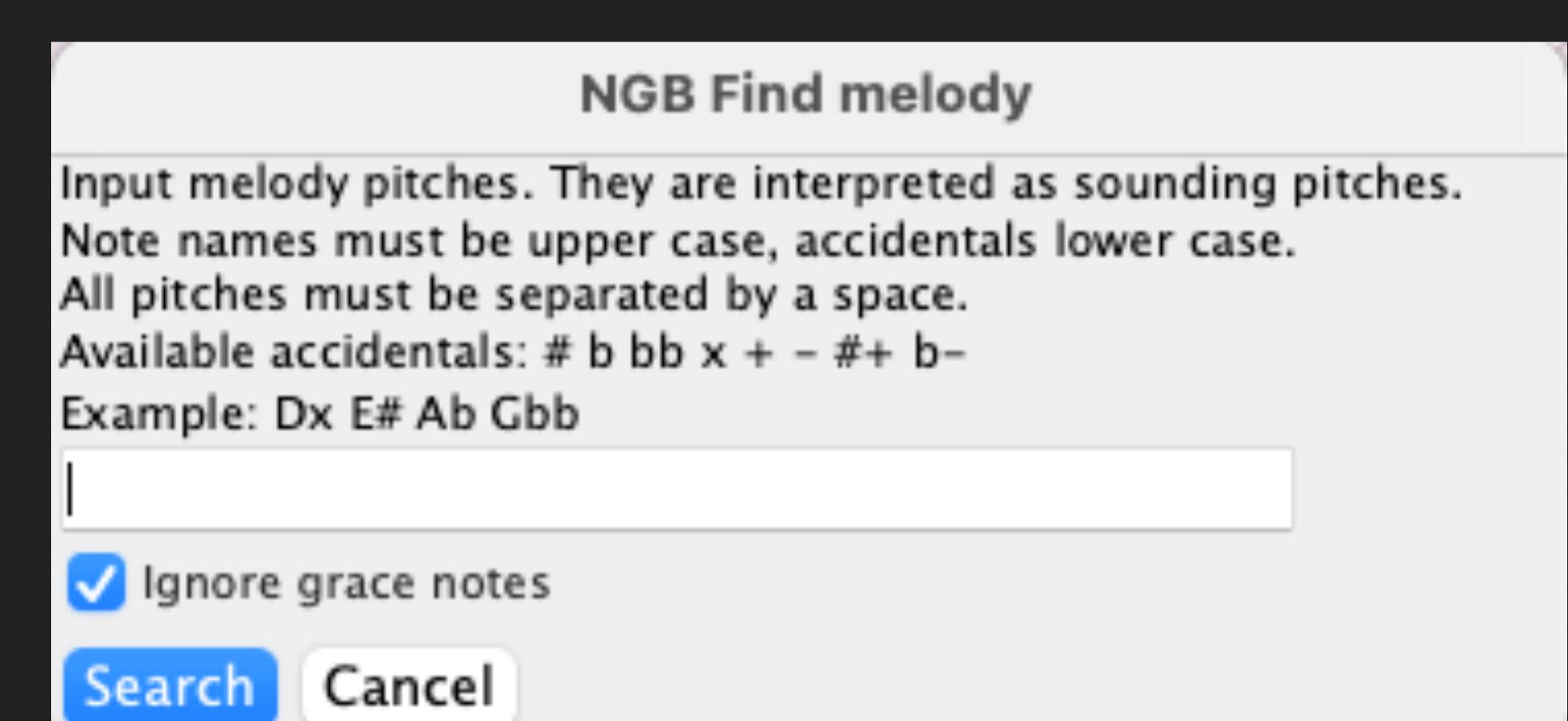
Correcting bad hairpins



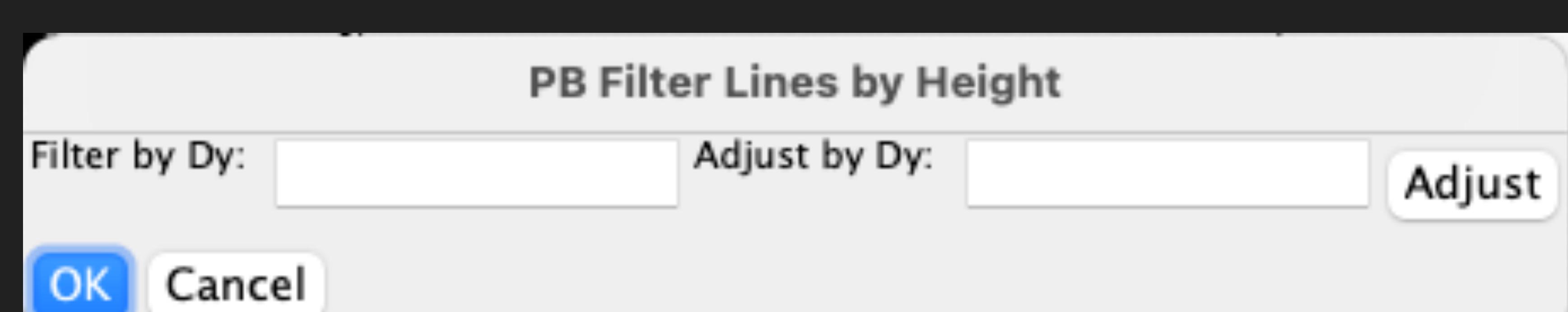
Adding variety of microtonal accidentals (HEJI) to notes in the fastest way possible.



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

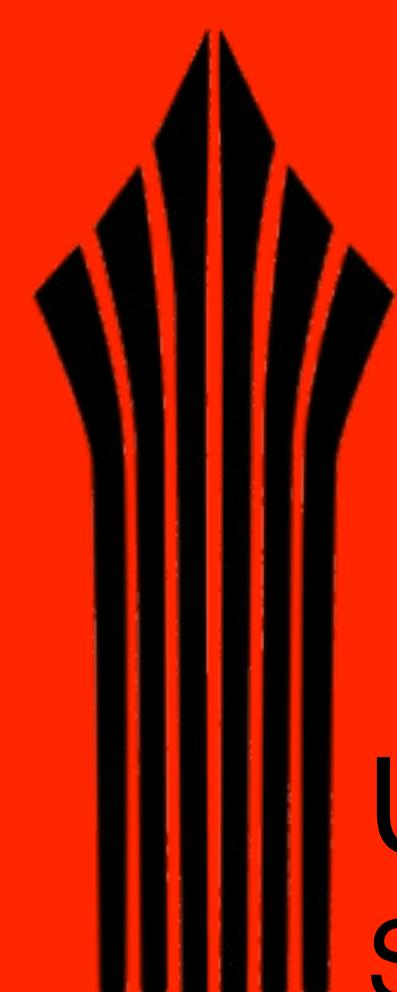
University of Applied Science and Technology, Tehran, Iran (2016 - 2019)
prof. Martyna Kosecka

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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