

Audio Engineering Society

2026 Convention

Student Recording Competition

Category 1 Submission

Traditional Acoustic Recording

Member 123456

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RECORDING REPORT

General Information

Recording Date: March 21, 2025

Music: Pupil of Light composed by Bobby Ge

Recording Type: Live Concert Recording

Recording Setting: Ramsey Concert Hall- medium-sized hall

Performers: Khemia Ensemble- Pierrot Ensemble with Piano, Violin, Cello, Voice, Clarinet, Flute, and Percussion

Engineer: AES Entrant 885336

Recording Equipment:

Daw: Sequoia

Console: LAWO mc^2

Preamps: Merging Hapi MKII

Microphones: Schoeps MK5, Neumann KM84, Neumann U89, Sennheiser MKH40, Austrian Audio OC818, Neumann KM185, Sennheiser e945, AT4050

Sample Rate & Bit Depth: 96kHz, 24 bit

Monitoring: Genelec Studio Monitor

General Information:

This recording was made as part of a concert given by Khemia Ensemble. The piece is longer than five minutes, so this submission includes an excerpt that highlights the recording's goals, logistical challenges, and solutions to those challenges. This is a multitrack recording utilizing a main array of spaced Schoeps MKH5s with omnidirectional capsules 80cm apart and an angle of 110° between them. Accent mics were used sparingly, relying heavily on the main pair for the overall sound. The goal for this recording was to provide a natural recreation of the performance given by this ensemble for livestream and archival purposes. Particular attention was directed toward preserving the lively reverb provided by the space while maintaining the presence and precise articulation demanded by *Pupil of Light*.

Ch	Instrument	Mic	Polar	Preamp
1	Main L	MK5	Omni	RS Hapi
2	Main R	MK5	Omni	RS Hapi
3	Voice	DPA lav	Omni	RS Hapi
5	Violin	KM84	Cardioid	RS Hapi
6	Cello	U89	Cardioid	RS Hapi
7	Clarinet	MKH40	Cardioid	RS Hapi
8	Flute	MKH40	Cardioid	RS Hapi
9	Piano L	OC818	Hypercardioid	RS Hapi
10	Piano R	OC818	Hypercardioid	RS Hapi
11	Perc 1 L (vibes)	KM185	Hypercardioid	RS Hapi
12	Perc 1 R (vibes)	KM185	Hypercardioid	RS Hapi
13	Perc 2 Crotales	KM185	Hypercardioid	RS Hapi
14	Perc 2 Snare	e945	Hypercardioid	RS Hapi
15	Perc 2 Kick	AT4050		RS Hapi
16				RS Hapi
1				P Hapi
2				P Hapi
3	Electronics L	-	-	P Hapi
4	Electronics R	-	-	P Hapi
	Composer	Ge		
	Piece	Pupil of Light		
	Location	Ramsey Concert Hall		
	Sample Rate	96khz		
	Bit Depth	24bit		

Figure 1: Input List for Concert

The Recording:

This particular piece involved a more complex instrumentation setup and a pre-recorded track routed through our Hapi interface for live integration. I mixed only for the recording— front of house was handled by another engineer, which allowed me to focus on crafting an image that aligned with the ensemble’s emphasis on texture and layered timbres.





Figures 2 & 3: Photos from the Concert

For the main pair, I chose spaced omnis about 2.5 meters from the ensemble and approximately 3.5 meters above the stage. This placement allowed for a wide, articulated stereo image while still capturing an accurate balance of the natural reverberation of Ramsey Concert Hall. An 80cm spacing was chosen to provide the widest possible stereo image without introducing a hole to the center of the image.

As seen in the above figures, the ensemble was arranged in a semicircle centered around the vocalist. Strings and piano were placed to the left, clarinet and flute to the right, and percussion filling the remainder of the crescent behind the vocalist. The location of percussion created more distance from the stereo pair to allow for a greater sense of depth and avoid excessive transient energy reaching the main array, which would make the recording sound unnaturally “sharp.”

Signal Flow:

The microphones were routed into snakes on stage, which connected to a 16-channel Merging Hapi MKII preamp and a smaller portable Hapi. Levels were set in the preamp before being passed into the LAWO mc^2 console for mixing. This mix was routed into Sequoia for multitrack recording at 96kHz / 24-bit resolution. Monitoring was done through the main mix bus feeding Sequoia.

The Mix & Challenges Faced:

Accent microphones were used sparingly. They were utilized to strengthen the articulation of the stereo image and provide small increases in high-frequency content. It was imperative not to rely heavily on the close mics to maintain the interwoven character created by the instrumentation. Melodies needed to be able to move from instrument to instrument, passing seamlessly through the stereo image without ambiguity in source.

Ultimately, the main pair constituted approximately 85% of the final mix. No equalization was used. Delay was applied to avoid comb filtering caused by timing differences between the accent mics and the main pair. No compression was used in an effort to preserve the full dynamic range of the ensemble.

The vocalist wore a DPA lavalier microphone to enable movement and auxiliary percussion playing; however, bleed into this microphone was substantial. I found it challenging to set a level that kept the voice present in the mix without introducing an unnatural direct-to-indirect sound ratio when active and allowing for high contribution of bleed in the image when the vocalist was silent. I also did not want to contribute a noticeable change to the image by lowering the level each time the vocalist wasn't singing. So, I listened carefully during rehearsal and began with what I thought was too much voice and lowered the gain until the vocal line functioned as an equal contender in the mix, and the bleed became less perceptible.

Future Changes:

Given the opportunity to record this ensemble again, I would select a different microphone for the voice. While I appreciate the blend created with the rest of the ensemble and the voice—treating the voice as an equal contender, rather than a centerpiece, emphasizing the small yet powerful nature of a pupil of light—I found myself wanting to have the flexibility to bring the

voice out of the texture more without sacrificing the image. Increasing the vocal level led to the perception of instruments as coming from multiple sources, changes in timbre of the capture, etc.

Given that the vocalist needed to be able to move and play other instruments, a lavalier microphone would remain the correct decision. However, I would look into one with more directionality and improved high-frequency reproduction to create the sense of isolation I desired and provide equal clarity in the voice as with other instruments.