



The production combined L-ISA technology with CAST BlackTrax real-time tracking.

Cultivating *The Secret Garden*

By: Sharon Stancavage

L-Acoustics' L-ISA technology makes its academic debut

College-Conservatory of Music at University of Cincinnati recently staged a production of the musical *The Secret Garden* that brought something new to the school's Corbett Auditorium: L-ISA Immersive Hyperreal Sound technology by L-Acoustics, working in tandem with CAST

BlackTrax. "This is the first time it's been used in an academic setting in the United States," notes L-Acoustics application engineer Jordan Tani. (CCM offers one of the country's leading musical theatre programs: Alumni include Karen Olivo, Stephen Flaherty, Faith Prince, Tony Yazbeck, and Michele Pawk.) Key to the process were the project's production partners: Loud and Clear, which is Cincinnati-based, and Mid-America Sound, based in Greenfield, Indiana, both of which provided equipment for the project. "Thanks to our certified providers," Tani says, "they were

able to get the remainder of the gear for production in addition to what L-Acoustics provided.”

The Secret Garden's audio team—including mix engineer Corbin White and associate sound designer/system engineer Eddy Mineishi—made a pilgrimage to L-Acoustics Americas' headquarters to learn L-ISA technology. White notes, “When we went into Ocean [one of L-ISA's playback solutions, designed for live entertainment] made me feel like I didn't know anything about sound at all. For so long, we've settled for stereo; we have said, 'It's not the best, but this is what we've got and there is nothing we can do about it.' L-Acoustics said, 'No, we're going to do something about it.'” Mineishi adds, “We walked into the LA office and it opened up a huge world of sound that I had not experienced before. I have been to other test facilities and training sessions, but this one was extra special; there were so many opportunities to learn, not only about L-ISA, but also about the behavior of sound as it propagates in different environments.”

L-ISA training took three days. “For me, the learning curve was fairly easy,” Mineishi says. “The only real challenge was learning the quirks and behaviors of the remote software, but that took just a couple hours of poking around.” White had a similar experience: “By the time we left, I felt pretty comfortable in the L-ISA Controller. I understood how things were working and what we were getting ourselves into.”

For *The Secret Garden*, “The L-ISA frontal system was two ARCS Wide [line source elements] per array, for a total of five arrays, and it covered the house quite well,” Tani says. “Due to the 30° vertical dispersion of each of the ARCS Wides, only two elements were needed in each for coverage of the house. To obtain the same vertical coverage with smaller line array elements, we would need at least six per array, which significantly increases the amount of gear needed in addition to limitations of trim height and rigging constraints. We had two KS21 subs that were hung off-center from the center array.”

Initially, the sound design was a straightforward L-ISA scene configuration. “Over time,” Tani says, “we had discussions about what [sound] designer Zachory Ivans wanted to do creatively. It then evolved from a scene configuration to also include adding surrounds and overheads. This allowed us to place effects, adding into the room engine, which allows us to really envelop the audience in the world of the music.” For the surround system, there were eight Syva cabinets behind the theatre's architectural sconces—four per side—and eight X8 point sources for overheads. The latter “were in the catwalks,” Tani says, “above acoustical clouds and some paneling that is relatively transparent. They were about 35' above the orchestra level, pointing down, overlapping as much of the audience as possible.”

Along with the L-ISA system technology, which includes

the L-ISA Processor, the production used both Ableton Live and QLab. “We had QLab acting as both effects playback and control of Ableton Live and L-ISA,” Tani says. “QLab triggers Ableton to control these sound effects via L-ISA Source control plug-ins. With the ability to draw automation curves, we're able to control the movement in a fluid manner, moving wind and rain effects through the system with ease. QLab also triggers snapshots within L-ISA to control simple movements during scene changes. L-ISA objects can be controlled with snapshots, plug-ins, external OSC, trackers, and on the desk [a DiGiCo SD10] with Desklink. We used all of these methods in conjunction with each other and L-ISA handled it without breaking a sweat.”

Applying L-ISA to musical theatre

In terms of working with L-ISA, Mineishi notes, “The thing that catches anyone off guard when working with a system like this for the first time is that the requirements are totally different than a typical sound system. Typically, we manipulate groups of vocals in the console through the use of bus channels, then we send those bus channels to a matrix that routes to the PA. With L-ISA, you need to send discrete vocal and instrument channels into the processor, and then you need discrete outputs to your speaker system.”

“As a theatrical sound designer,” Mineishi says, “a huge part of my system design reflects how many discrete outputs I need for my QLab session. With L-ISA, we had to think of how many discrete sounds we needed to play at one time and where those sounds needed to be played from. Just like the vocal and instrument channels, you need discrete QLab channels in L-ISA. Each QLab channel becomes a sound object in L-ISA, which means that instead of using a number of fade cues to pan audio around, we programmed a cue that moves the QLab channel across any of the speakers.” White handled the Ableton programming. “L-ISA has been really reliable, and it was easy to integrate using the Ableton plug-in, which was very effective and made it easy to program and record the automation data,” he explains.

The production included 16 BlackTrax beacons for the actors. “We've used BlackTrax integration before, but never on this scale,” Tani says. “BlackTrax told us that this was the greatest number of sound objects being controlled at one time in a system.” The BlackTrax beacons track the actors as they move through the space—both left/right and upstage/downstage. It sends that data to L-ISA, which puts the audio in the appropriate speakers. “BlackTrax has their RTTrP [Real-Time Tracking Protocol], which can be sent to various third parties,” Tani says. “L-ISA has a built-in bridge application that takes the RTTrP protocol and integrates it into the system. We don't need to use a third-



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party decoder to translate data for L-ISA. The fusion was so natural, you could close your eyes and know where anyone was onstage at any time. The PA simply faded away; it was incredibly transparent."

Mixing with L-ISA has been a unique experience for White. "This is the first show that after mixing for a night, I walked away and my ears felt fine," he says. "I never got notes about making it louder. I had an easier time with fixing things in the mix; I felt like I could hear more and balance things better."

Indeed, White used a minimum of plug-ins. "We wanted to use a lot more of the Waves plug-ins, but it was a matter of time, and by the time we got to them, we had a day left to tech. There were a few members of the cast whom we had a hard time getting down a good EQ; we had



Left to right: Jordan Tani, Zach Ivans, Corbin White.

problems with sibilance. We found the Waves dynamic EQs and the de-essers to be pretty effective at that.”

Mineishi says, “The biggest challenges in implementing the system in our theatre were the time constraints that we were under and the number of infrastructure lines we had.” Also, he says, “All this fancy technology is incredible, but one of the main concerns with new technology like this is if it takes extra time. The answer: no, it does not. In fact, on *The Secret Garden*, it saved us a lot of time that we normally take up in the venue with tuning and cueing. I can’t stress enough how easy it is to deploy an L-ISA system. Not only are the user interfaces so easy to use, but you also get amazing customer support from the L-Acoustics team.”

From a mix standpoint, L-ISA changed the reverb game, so to speak. “L-ISA has an integrated room engine, allowing you to create a reverb space that the objects inhabit,” Tani says. “We created different spaces for each scene and song. We could be in the mansion in one scene and the garden the next, each with its characteristics and decay times. In musical theatre, normally, we create reverbs for the cast and orchestra and give control of their levels to the mixer. To have that separate control and still take advantage of the integrated room engine, we created reverb objects for actors, and those objects track with them in space, no matter where they go on the stage. Because it’s object-based, the reverb of Mary [the musical’s young heroine], for example, always tracks with her. So that way you will always hear her dry signal and her reverb will come out of the system proportional to where she moves onstage.”

L-ISA affected the orchestra as well. “In addition to the benefits of localization, from a mix perspective rather than simply controlling volume,” Tani says, “the orchestra can move physically back in space, akin to a more natural underscoring. For



Left to right: Corbin White, Zach Ivans.

certain dialogue scenes, the orchestra can move relative to the actor’s location in regard to the content at hand. So, the orchestra might be at 20% or 30% distance for the musical numbers, letting the cast be clearly heard above the orchestra, and then it could move to 50% distance during an intimate moment where you have a need for underscoring.”

The Secret Garden had a cast of 24, and White had 28 microphones, including backups. “They were on [Sennheiser] MKE1s,” he says; “For transmitters and receivers, we used Shure ULXD4Q [quad-channel wireless digital receivers]. We also have a Lectrosonics Venue 2 receiver and SSM Micro belt-track transmitters; we have only four channels and typically use those to double-mic the leads.” For the orchestra, “We used a mix of DPA 4061s and 4099s on the strings on the harp, Cascade Fatheads on the horns, and Sennheiser MD431s on trombone and trumpet.”

While L-ISA is a natural on the stage, White sees other applications for it: “We’ve talked about doing it again with theatre, and we’ve also talked about doing it with opera or as reinforcement for an orchestra; it’s fantastic on an orchestra. I also think

it’s great for electronic music where you have dense, complex textures. For theatre and voice, it’s a bit more obvious that it’s useful because it’s spoken language that we’re clearing up, and there’s a more definitive meaning attached to human words. Instrumental music is just as full of meaning, though; there are phrases, motifs, and whole voices that so often get lost in stereo or mono. It might not be as apparent at first because we don’t have a way to translate those things into words.”

Tani has nothing but positive things to say about the sound students at CCM. “They have all been quick to adapt to the new technology, and it’s been great working with them on the process. They are all equally talented and quick on their feet to troubleshoot if issues arise; these students are the future engineers, designers, and techs of our industry, and I look forward to working with them in the future,” he concludes. 📶