Studio Report: Music Technology at the Pennsylvania State University

Mark Ballora
School of Music/School of Theatre
Penn State University
ballora@psu.edu

ABSTRACT

This is a continuation of two earlier program descriptions, discussing changes that have occurred since the last report in Penn State’s music technology curriculum, facilities, and research focus.

1. UNDERGRADUATE DEGREE

Penn State was approved by the National Association of Schools of Music (NASM) to create an option in Music Technology to its Bachelor of Arts in Music degree, with the first freshmen class expected in fall 2015. At Penn State, many Bachelor of Arts programs come in a variety of flavors, or options. For example, the BA in Theatre includes options in General Theatre Studies, Dance Performance, Multicultural Performance, and Theatre Performance. By the same token, the School of Music, which formerly had a single BA in Music, now has two options: General Music Studies and Music Technology [1, 2]. By definition, a BA is a liberal arts-based degree, as opposed to a professional degree. Music BA programs typically include 30-45% music content, as opposed to 65% of music content that is typically included in the professional Bachelor of Music degree.

The School of Music enrolls approximately 325 students, with 50 full-time faculty. As has been described in earlier reports [3, 4], Penn State does not currently have the resources to offer a professional degree program in music technology. However, the resources of the larger university make a BA degree a suitable way to combine relevant course offerings by other areas of study. We have had graduates continue on to graduate study at leading music technology centers, although it must be stressed that they did not qualify for these programs because they simply took required coursework; rather, they qualified for them because they went above and beyond what was required. The opportunities are there for those with initiative. These students were able to continue in the field despite an absence of a music technology degree. Their successors now have this degree option available to them.

As this degree was built from the bottom up, rather than conceived from the top down, leveraging the existing BA in Music turned out to be the easiest way to adding a new degree program. The Music Technology option is a superset of what is now the General Music studies option of the BA in Music degree. For both options, the primary requirement for admission is to pass an audition on an instrument taught by the performance faculty and being accepted into one of their studios. Both options have the same requirements in theory, musicianship, history, applied study and ensemble participation. The General Music Studies option has a number of electives. The Music Technology option simply fills in the open elective spots in general education and music with required music technology courses. Required general education include courses in math (basic calculus and matrices), science (physics and musical acoustics), and computer science. Required music technology courses include basic DAW music production, recording studio training, audio recording, computer music synthesis, software programming for musicians, history of electroacoustic music, and computer music composition. Both BA options culminate in a final project to be determined in consultation with the advisor.

The introductory DAW course is offered online [5]. The software provided in our computer labs is Logic Pro X and Ableton Live, although students may complete the work in any comparable DAW program. The Recording Studios are equipped with Pro Tools and Logic. Programming and synthesis courses require that students learn Max/MSP and SuperCollider, respectively (although students may repeat the programming course for purposes of learning another language, such as Processing or ChucK). Theatre’s Sound Design program offers courses in systems automation, whereby theatrical devices are connected and integrated via protocols and hardware such MIDI, OSC, DMX, and Arduino, controlled with QLab software. The history class has an online text that has been described previously [6].

As described in earlier reports, Penn State also offers a Music Technology Minor that graduates some 15-20 students per academic year. Students who have completed the minor have majored in a variety of areas, including Music, Information Sciences and Technology, Electrical Engineering, Journalism, Pre-Med, Meteorology, and Astronomy.

A one-credit version of the basic DAW class is a required course for all Music majors. This is meant to give them min-
2. PEOPLE

There is one music technology faculty member who advises students in the major and minor. The program is closely allied with the Composition area and the School of Theatre and its Sound Design faculty member. Other associations include faculty in Visual Arts, Acoustics, Electrical Engineering, and Information Sciences and Technology. There is one graduate assistantship offered annually (typically, though not always, given to a Composition student), with other students employed on an hourly basis for various maintenance duties.

3. FACILITIES

With growing numbers of students purchasing laptops, it has become less necessary than it was in the past to maintain an entry-level computer music lab. While there are machines available for students in the introductory classes, many use their own computers or campus labs instead.

The School of Theatre maintains a Sound Lab, which serves as a research space for multi-channel audio, networking, automation, and electronics. The lab is used for some music technology classes, and as the population of students in the Music Technology Option grows, we expect that this space will become the major hub of activity for its students.

Events held in the School of Music’s recital hall increasingly include multi-media components such as slide shows, movies, or pieces played with CD accompaniment. The School is also investing in effective video streaming, as this is seen as invaluable exposure for the School. Work in the recital hall now occupies a good deal of the graduate assistant’s time, with a part-time staff position having been created to manage the video streaming. Hourly-wage students are employed for straightforward soundboard work, such as performances only involving an announcement microphone and CD playback.

Plans are underway for the construction of a 400-seat recital hall, which is expected to break ground in 2017 or 2018. The new hall should be equipped with contemporary audio, recording, video, and lighting technology, and will likely require additional personnel to maintain it.

Three studios are jointly supported by the School of Music and the School of Theatre. Studio A is the live tracking room. Studio B is an advanced workstation meant for work with virtual instrument on projects such as film scoring. Studio C is an isolation room that can be recorded from Studio B. Studio D is used for mixing projects that were recorded in Studio A or rendered in Studio B. Images and information on the studios can be found at [8].

4. RESEARCH

Without a graduate program in music technology, there is not a large amount of student research that is generated by the area. There is a certain degree of applied research, in that the School of Theatre is typically cutting-edge with its automation and systems integration work. The primary output since 2010 from the music technology area has been in sonification work, which has been carried out by the author, with a number of collaborations with colleagues in the College of Information Sciences and Technology, as well as work produced by a New Media graduate student in the School of Visual Arts. Penn State will host the 2017 International Conference of Auditory Display (ICAD), which will be co-chaired by the author and a colleague in IST, with technical supervision from the School of Theatre’s Sound Design program. The College of Arts and Architecture is sponsoring sonification projects as part of its newly created Research Incubator [9], and is considering creating a graduate degree in the area in the coming years.

5. “WE ARE…!”

Given that the major is new, for the foreseeable future the main draw to the program is probably going to be based on Penn State’s legacy as a university with strong family and alumni ties. Our facilities and presence in the field are admittedly moderate when compared to other more established schools. But for the student who desires a full university experience with a large campus, wide range of course offerings, diverse student body, college town atmosphere, and broad range of student activities, Penn State has a great deal to offer. The town of State College is consistently rated as one of the nation’s top college towns, and one of the small towns with the highest educated population. The fact that it is relatively isolated (but not too isolated), 2-3 hours from a major city and surrounded by farmland, makes it a kind of bubble. This is probably one of the reasons for its strong alumni presence worldwide: the years spent here at a world-class research university in an isolated environment tend to be years remembered most fondly. Penn State has a longstanding reputation for strong academics and social tolerance, embodied in well-worn (but also well-considered) slogans such as “Success with Honor” and “No ‘I’ in ‘Team’”. These may sound a little corny, but on the other hand, cultural values based on such corny phrases are principles that many alumni carry through life as part of an extended family. In fact, the signature cheer of “We are…Penn State!” dates back to the 1940s, when the football team was scheduled to play a bowl game in the segregated South, and was asked to keep the African-American players at home. The reply was, “We are Penn State. We come as a team or we don’t come at all.” The team missed the bowl game, and the reply became a bedrock principle for the university
community. Most undergraduates choose to come to Penn State because it is Penn State.

The context of the larger university is what the music technology program relies upon, as the School of Music cannot offer the major on its own, but relies on the offerings of other academic units to round out the Music courses. Our main strength is in training in fundamentals. This is the foundation on which our more successful students have made a way for themselves to graduate study in distinguished institutions -- it is particularly satisfying when students from other majors who minor in music technology are admitted to graduate music technology programs. In time, we hope that the program will develop its own unique identity. But as a starting point, ensuring good training in fundamentals is a good first step.

6. REFERENCES