

# STUDENT NEWS

## Carnegie Mellon Awards Its First Music and Technology Master's Degree to Dawen Liang

by RICCARDO SCHULZ,  
Associate Teaching Professor and  
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Dawen Liang was in his second year of studies as a computer science major at Fudan University, one of the oldest and most selective universities in China, when he first heard about Carnegie Mellon University.

Dawen is from the city of Taiyuan, the largest city in the Shanxi province of northern China. He moved to Shanghai when he was accepted at Fudan University, and it was there, during his sophomore year, that one of Dawen's classes used a text book that had a unique approach to teaching computer science—it integrated computer code with machine interaction—and it became an inspiration for Dawen. The book was *Computer Systems: A Programmer's Perspective*. "This was the best textbook I have ever read," he said, "and it changed my life." Reading about the authors of this textbook—Randall Bryant and David O'Hallaron—Dawen discovered they were both teaching at Carnegie Mellon. The text book that captured his imagination was, and still is, used all over the world.

In the meantime, thinking about his own future that year, Dawen feared that although he was receiving excellent training at Fudan, he might still not be a strong candidate for a Ph.D. program in computer science like the one at CMU.

But Dawen, who had taken piano lessons since the age of 6 or 7, saw another opportunity that would **combine his passion and formal education in computer science with his talent as a musician**. When a good friend, ahead of him by two years, was accepted to the CCRMA (Center for Computer Research in Music and Acoustics) program at Stanford, the gears started turning in Dawen's mind. "I had a much higher QPA than my friend," Dawen said modestly, "so if he could get into that program at Stanford, then I should be able to as well." The year was 2008, and Dawen still had almost two years to prepare for the GRE and TOEFL exams—requirements for just about any course of study in the USA—and to research graduate programs that involved music and computer science.

Dawen focused on this approach, figuring that this field was relatively new and unknown, and he would have a competitive edge. CMU was for him still an unattainable dream, but he applied to Stanford and about two dozen other programs that involved music and computer science. Stanford's program, in the few years since his friend was accepted, had grown in stature and was attracting a more accomplished pool of applicants. Much to his disappointment, Stanford turned him down, as did a few other schools that were his 'hopeful' choices. Among the schools that Dawen applied to was Carnegie Mellon, where a new degree program—Music and Technology—housed in the School of Music and offering both graduate and undergraduate degrees had been developed through the efforts of Noel Zahler, then-head of the School of Music at Carnegie Mellon, with Roger Dannenberg (Computer Science), Tom Sullivan (Electrical and Computer Engineering), Rich Stern (ECE and Computer Science) and Riccardo Schulz (Music).

Suddenly Dawen realized that Carnegie Mellon University was a possibility for him. With some rejections and a handful of acceptances, **it was time for a decision that would be life-changing, taking him away from the country he had never left, and setting him on a career path he never could have imagined a few months earlier**. Dawen considered all kinds of factors to help him decide where to go. He was a huge basketball fan, and at least one acceptance got crossed off the list because he had a low opinion of that city's NBA team. (The fact that Pittsburgh didn't have an NBA team didn't seem to register.) Dawen knew that the Music and Technology program at CMU was new, and that he would be in the first enrolling class—a situation that would have to be factored into his final decision. He needed more information before he could decide which offer to accept.

Looking at the list of faculty and seeing Roger Dannenberg's name was one of the deciding factors for Dawen, because he already knew of Dannenberg's work in computer music.

"I wrote the longest e-mail I had ever written in my life" to Roger Dannenberg, Dawen recalled, "with so many questions and concerns," and waited, as the deadline neared, for Roger to respond. Dannenberg's response convinced Dawen that the Music and Technology program at CMU was the right choice for him. He accepted, and came to Pittsburgh for the Fall semester 2010, the first recruit for the new program.

The Music and Technology program at Carnegie Mellon gave Dawen access to just about any course offered in the Schools of Music, Computer Science, and Electrical and Computer Engineering. Dawen and his colleague, Guangyu (Gus) Xia, a graduate student in computer science and an excellent flutist, enrolled in a class taught by Bhiksha Raj, professor in the Language Technologies Institute of Computer Science. There they joined forces with another computer scientist/musician, Mark Harvilla. **Together, they chose a project to develop a music-centered computer program that was at the intersection of machine learning and computer science**.

Their project was a computer program that would automatically locate similar music passages in different performances. This would be a valuable aid to students who might want to compare different performances of the same passage of music. The project was successful, and it grew into a paper that was presented at ISMIR (International Society for Music Information Retrieval). The paper was published and further developed for Dawen's thesis.

As a result of his work in the machine learning area, as his master's program was nearing completion, Dawen began looking into Ph.D. programs in that field. He received his master's degree in Music and Technology from Carnegie Mellon in 2012, and is now a Ph.D. candidate at Columbia University, as a researcher in the Laboratory for the Recognition and Organization of Speech and Audio (labROSA), which is part of the Electrical Engineering Department at Columbia.

# Starling String Quartet

## journeys to Qatar for exchange of musical culture

by HILARY GAMBLE (BA'10, MM'12, AMS'13)



**As a member of the Starling Honors String Quartet,**

I was invited to perform with the group during Spring Break 2012 at the Carnegie Mellon Qatar campus. I had traveled extensively as a musician before, but had never been to the Middle East. I was excited to experience a new culture along with my fellow quartet members Sonia Shklarov, violin; AiWen Thian, viola; and Marlene Ballena, cello. Joining us was interim head of the School of Music (now current head) Denis Colwell and his wife Melanie. I envisioned our visit to Qatar as a cultural exchange: we would introduce our Qatari audience to the great literature for string quartet, and in the process would learn about their very different way of life.

↑ IMAGE: GOOGLE MAPS

Our first performance venue was at Carnegie Mellon in Qatar in Education City, a large educational complex containing branches of several high-level universities. We gave concerts for students and faculty there. It was an inspiring place to perform, first of all because of its stunning and futuristic architecture, and more importantly because of the intensive academic atmosphere. It was fascinating to witness the same rigorous academic standards of the Pittsburgh campus at work halfway around the world. Carnegie Mellon University in Qatar Dean Ilker Baybars was very gracious as host, illuminating for us the education process in Doha.

The group also had the opportunity to play in other venues in Doha, including the Four Seasons Hotel. This performance was particularly memorable, as we later found out that our small audience included Kofi Anan, former Secretary General of the United Nations.

Another highlight of the trip was performing and interacting with students at a few local schools. This gave us an opportunity

to connect with a completely fresh audience: some of the young students had never heard a string quartet before, and it was a great thrill to introduce them to the intricacies of the violin, my instrument. We played Dvořák and Shostakovich, two composers whose backgrounds differ greatly from those of most Qataris, to say the least. It was a joy to introduce young children to these two musical giants.

During our time off we enjoyed seeing the sights of the city. One of my favorite moments of the trip was our visit to the Souk Waqif, or local bazaar. We gained a view into the everyday lives of Qataris, bargaining for goods at the Souk, sampling delicious foods, and listening to popular Middle Eastern music. I haggled with a vendor for a lovely carved wooden chess set which I brought back with me as a memento of the trip.

I am so thankful to be at a place like Carnegie Mellon where experiences such as this concert tour are possible. As a musician and artist, I think it is vital to have an understanding of what is going on in the world at large, as well as maintaining an active curiosity about cultures and customs different from my own. This trip gave me the opportunity to hone my craft through performances, and was integral to my education as a musician and as a socially-conscious individual.

Hilary Gamble is studying to receive her Advanced Music Studies Certificate in the viola studio of David Harding.

Watch:



**Starling Quartet at the Four Seasons, Doha, Qatar:**  
<http://youtu.be/Nc1U0IFoPnA>