

Career of the Month

October 2016, Based on Interviews With Professionals Using Science in the Workplace

Luba Vangelova

Acoustical Consultant

Sound experts combine science and art to “systematically and reliably control how something will sound to an audience,” says Los Angeles–based acoustical consultant Pantelis Vassilakis. “This requires an understanding of sound as a physical entity, signal, physiological response, and perception.” There are many career paths available, focusing on architecture (designing spaces to produce the desired sonic response), the environment (measuring and mitigating noise), product design (for instance, to ensure that the sound of a car engine or door communicates the desired brand and quality messages), and, of course, music.



Work overview.

I currently work for the KAABOO Music Experience festival. I work with the promoter’s technical team, city officials, and others to minimize the event’s noise impact on the surrounding residences, while satisfying the aesthetic expectations of the artists and audience. I evaluate the programming, venue, sound system, and artist expectations. For instance, Aerosmith, a stadium rock band, would have very different expectations than an acoustic musician of how their music should sound.

I use computer models to make initial predictions on sound spread and reach, test them, and make adjustments. It is important to understand the limitations of the predictive models used. I have to determine representative locations for baseline noise measurements, which I compare to noise measurements taken during the festival, to evaluate the event’s noise impact. I also interact with city and venue representatives to explain the steps we’re taking to reduce any such impact. I enjoy solving acoustics and aesthetics problems and communicating with people about the challenges.



Career path.

I’ve always loved science and music. I first studied electrical engineering in college in Greece. I began my formal music studies at age 27, thanks to a scholarship to study music composition in England. I eventually combined my interests through a PhD program in systematic musicology—a mix of musical acoustics, sound perception, and aesthetics—at the University of California, Los Angeles. It involved math, physics, physiology, and psychology. My focus was on the physical, physiological, perceptual, and cultural correlates of our emotional responses to sound. I also received a postdoctoral certificate in auditory science for researching the inner ear.

After receiving over 70 rejection letters, I accepted a triple appointment at DePaul University’s Faculty Instructional Technology Services, Libraries, and School of Music. For six years, I contributed to all major teaching and learning initiatives at the institution, while designing and teaching music courses. In the meantime, I was also teaching psychoacoustics, part-time, at Columbia College Chicago, where I was eventually hired to run its Department of Audio Arts and Acoustics.

Throughout my academic career I consistently have done freelance work, composing, doing sound installations for, and producing numerous music and multimedia events, as well as restoring and mastering field recordings and consulting on acoustics and audio systems design.

Career highlights.

I received an award from Princess Diana for the centennial production celebrat-

ing Tchaikovsky's *Nutcracker*. I toured London with the London Chinese Orchestra performing my original music. I learned a lot from being at the helm of a unique academic department that brought together all sound-related disciplines under one roof. I enjoy working with artists and community members to achieve the best sonic results possible. I am also passionate about promoting hearing conservation.

Knowledge, skills and training needed.

You need to understand physics, especially waves and electricity; algebra at a

minimum but ideally calculus and differential equations; the physiology of hearing; psychoacoustics; and cognitive psychology. Get a degree in one or two of those subjects and have a passion to learn the rest yourself, perhaps by going to professional conferences. Teaching classes is another great way to deepen your knowledge.

Advice for students.

Get a good foundation in math and physics. Learn about well-known sound engineers and start to record music, or play around with equipment. Find out what it takes to get a degree in acoustics.

BONUS POINTS

Vassilakis's education:

BA in composition from Kingston University in England; MA and PhD in music cognition, acoustics, and aesthetics from UCLA

On the web:

www.aes.org; www.acoustical-society.org; www.acousticslab.org

Related occupations:

Sound system designer, recording and digital signal processing specialist, multimedia sound specialist, audio arts educator

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