

Appreciating the Flow of Serendipity: Channeling a Career in Architectural Acoustics

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I am a voracious consumer of leadership, management, and self-improvement books and training. I absolutely love learning; being a learner is core to how I perceive myself, an identity with which I highly resonate. Over the past five decades of my life, I have understood that if I study consistently, prepare diligently, practice persistently, and work hard, then I can achieve many of my personal and professional goals. Even so, things have not always gone as I hoped or dreamed that they would. Serendipity indeed has played a major role; something happenstance occurs that channels the direction of your life toward an altogether unexpected but immensely valuable and satisfying path. In my younger years, I never dreamed that I would become a faculty member in and leader of an academic unit in a college of engineering at a large public state university in the United States (see bit.ly/3z5oeUa), training future engineers in architectural acoustics and noise control. But I am so grateful to be where I am, following the flow of serendipity professionally and personally.

I have a distinct memory of the moment when my primary professional goal crystallized around designing concert halls. I was 15 years old, taking my first physics class at an all-female high school in Chattanooga, Tennessee. The textbook we were using for that class had text boxes sporadically arranged on the pages, highlighting interesting factoids or examples of physics in real life. One of those text boxes discussed how learning physics could be the foundation for a career in architectural acoustics, designing spaces for the performing arts. If my life were made into a movie, this would be the first scene in which music begins to play grandiosely to highlight this life-changing serendipitous moment. I could have glossed over that text box, but it was a serendipitous lightning bolt moment that set me on this professional career path. Thereafter, when people asked me what I

was going to do with my life, I began proclaiming that I was going to be an acoustician and design concert halls.

Having been raised by strict immigrant parents from Asia, I knew I was expected to work hard and be accepted into an Ivy League undergraduate institution. I was admitted to Princeton University, Princeton, New Jersey (see princeton.edu). The university impressed me with its small student body, focus on liberal arts undergraduate education, and beautiful campus. There was no degree in acoustics at Princeton, so I instead decided to pursue civil engineering with a certificate in architecture because that seemed closest to setting me on the professional path I had declared for myself. I was excited to find and enroll in an architecture course called “Lighting and Acoustics.” The acoustics portion was taught by Carl Rosenberg from the acoustical consulting firm Acentech (see acentech.com), who was an influential mentor to me and many others in our field. I greatly enjoyed this first class in acoustics!

With undergraduate graduation looming, I looked for a job with an acoustical consulting firm that worked in performing arts facilities or other architectural acoustics design. But I did not succeed in getting what I sought for; instead, in March of my senior year, I began nervously realizing that I should seriously consider graduate school as a next step. And so I applied to the graduate program

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THE FLOW OF SERENDIPITY

in acoustics at the Pennsylvania State University, State College (see acs.psu.edu) and matriculated the next year.

My first semesters at Penn State did not go as well as I might have hoped. In fact, I was dismissed by my first graduate advisor, partially because I was still focused on getting the highest grades in graduate courses and not appropriately dedicated to research. This felt like a huge failure at the time, but looking back on it now, this event was indeed very serendipitous. Soon after that, another faculty member, Courtney Burroughs, took me under his wing. When I learned that I was awarded a National Science Foundation (NSF) Graduate Research Fellowship later that year, I was able to pursue a PhD with him, studying sound radiation from bowed violins using nearfield acoustic holography. I also received a grant through the Graduate Research Program for Women from AT&T Bell Laboratories and had the extreme fortune to work a summer at Bell Laboratories under the mentorship of Gary Elko and Jim West (see bit.ly/3YZibuL).

Let me be clear that, at that time, I did not want to get a doctoral degree. I wanted to design concert halls, and the people I admired who did that for a living unanimously advised that I only needed a master's degree, not a PhD. But the NSF fellowship covered my doctoral studies, so I did complete that, and although I had not sought to get a PhD, it did serendipitously open the next door for me to be able to apply for and receive the Hunt Postdoctoral Fellowship (see bit.ly/47imOCn) from the Acoustical Society of America (ASA).

I did not look for any other postdoctoral positions; the Hunt Fellowship was special. It would fund my dreams of going to Denmark and working at the Technical University of Denmark (DTU), Kongens Lyngby (see bit.ly/4cOR5K8) under the mentorship of Anders Christian Gade, a faculty member at that time who was doing fascinating work in the field of architectural acoustics and on-stage acoustics in performing arts facilities. DTU is also where the room acoustics modeling program ODEON (see odeon.dk) was founded and has been housed for many decades now. Because there were no acoustics faculty at Penn State specializing in architectural acoustics when I was studying there in the late 1990s, I felt that spending a year at the DTU would be unparalleled in immersing me more fully in the study of concert hall acoustics. And it was! Not only did I

learn a great deal from my DTU mentors, but I also had the opportunity to travel all over Europe, visiting and attending concerts at renowned performing arts facilities, which helped me to understand and appreciate those spaces more deeply.

As one might expect, my travels throughout Europe led me into credit card debt. This was certainly a stressful scenario for me, but I was aware of what I was doing, consciously deciding to invest in impactful life experiences while I spent the year in Scandinavia and Europe.

The resulting financial stress, though, channeled me toward taking a tenure-track job offered by the University of Nebraska-Lincoln (UNL), starting in March 2000. I never wanted to be a faculty member, never! I was not aware of any tenured faculty member role models in the area or architectural acoustics. But in 1999, UNL was just starting a new architectural engineering program on their Omaha campus, and they were seeking a faculty member focused on architectural acoustics to join their team.

Another of their new faculty hires remembered me from being on the Penn State Engineering Graduate Student Board together; I was probably the only acoustics graduate student that she knew. But that serendipitous connection meant that they flew me from Copenhagen to Omaha in December 1999 to interview for the job. And I fit the bill, having a PhD (which I had never desired), and recently completed a postdoctoral position at the DTU focused on architectural acoustics (which was also a narrow channel that I slipped through). UNL offered me a tenure-track faculty position at a nice starting salary, which I definitely recognized would help tame my credit card debt.

I had never been to Nebraska before. I had to look up where it was on a map. I knew no one in the state. I thought I would just be there less than five years (long enough to not get tenure) and then I would finally join a consulting firm to work on concert halls. But I have now been at Nebraska for 25 years, longer than I have lived anywhere. UNL has supported me so well throughout these many years, giving me opportunities to teach and do research that I love in architectural acoustics and noise control. The Durham School of Architectural Engineering and Construction has outstanding financial resources,

stemming from an endowment from Charles Durham (one of the cofounders of HDR, which is headquartered in Omaha; see bit.ly/3Z8sNaR). I have felt professionally challenged and personally happy, living in Omaha, Nebraska. This place is truly a hidden gem, one that I am becoming more intent on trumpeting more broadly because I now lead this academic unit!

When I arrived at Nebraska in 2000, I was still very intent on doing research in concert hall acoustics. I feel fortunate to have received a United States NSF CAREER Award that jump-started my academic career (see bit.ly/3TeYMlR), but I soon found that this was not a great area in which one could expect to have a funded research program in the United States. Instead, I embraced the realization that I could have greater impact if I focused instead on the acoustic environments of more common spaces, specifically classrooms and restaurants.

One serendipitous occurrence was that the Environmental Protection Agency (EPA) put out a call for research proposals in 2012 on healthy schools as part of its “Science to Achieve Results (STAR)” program at an excellent time in my career when I was ready to serve as principal investigator of a large grant with the right team of colleagues at the UNL. I am very proud of the work we accomplished through that EPA-funded grant. “Evidence-Based Interactions Between Indoor Environmental Factors and Their Effects on K-12 Student Achievement” (see bit.ly/3Xb9lHT).

A second serendipitous incident was in 2016 when a close college friend noticed my interest in restaurant acoustics through my social media accounts and subsequently followed up to connect me with her cousin who had just recently founded Soundprint (see soundprint.co), a smartphone app aimed at crowdsourcing sound levels at restaurants. My collaboration with Soundprint has been exciting; although the Covid pandemic did upend that work for a while, I am thrilled that my research group is making inroads into that particular area again, with Soundprint as a research partner.

And so it is that I have not yet fulfilled the dream I proclaimed in my teenage years to be designing concert halls. Well, we all have our fair share of disappointments. At this stage of my life, though, it is easy to look back on the rocks in the stream and be tremendously grateful

for them; I would not change any part of the flow I have experienced. I may have been disappointed by many of the unexpected turns and challenges at the time, but they channeled my career through serendipity down a stream that has been deeply fulfilling, including the opportunity to serve the ASA as vice president (2015–2016) and president (2018–2019). I believe now that I would have been a terrible acoustical consultant; working as an educator and researcher in the field of architectural acoustics and noise control has been more rewarding than I could have dreamed.

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