

Sound Perspectives

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Ask an Acoustician: Adrian KC Lee



Meet Adrian KC Lee

In this issue, “Ask an Acoustician” features Adrian KC Lee. KC (as he is known) is a midcareer scientist at the University of Washington (Seattle) and is heavily involved in the Acoustical Society of America (ASA). He received his ScD from the Massachusetts Institute of Technology (MIT; Cambridge) and completed postdoctoral training at Boston University, Harvard Medical School, and Massachusetts General Hospital (Boston). KC serves on the editorial board of *The Journal of the Acoustical Society of America* (JASA) as a coordinating editor (CE) and has chaired the Strategic Group for the Dissemination of Information and Knowledge. He has also served on the Committee on Education in Acoustics and the International Liaison Committee for the ASA. I will let KC tell you his story.

A Conversation with Adrian KC Lee, in His Words

Tell us about your work.

Imagine a crowded Chinese restaurant: you are trying to have a conversation with your spouse amid your two children practicing their percussion skills with chopsticks while you simultaneously watch the dim sum cart server’s face to discern whether your favorite dish is being announced. My laboratory studies the cortical mechanisms underlying our ability to selectively listen to one sound source in such a crowded environment and how we leverage visual information to help us navigate in these everyday settings (see Lee, 2017, in *Acoustics Today*). I am also interested in understanding how one’s ability to interact in these complex sound scenes is impacted by neurodiversity (e.g., listeners with autism spectrum disorders).

Describe your career path.

When I was 16, I went to a high-school engineering camp hosted by The University of Wollongong (just outside Sydney, NSW, Australia) and saw how sound can be represented both in time and in frequency; it was a Hollywood clip showing how forensic acoustics is used to solve crimes (viz., a spectrogram). I was hooked. That led me to study electrical engineering for my bachelor’s degree at the University of New South Wales (Sydney, NSW, Australia), with a major concentration in signal processing. In my junior year, a book by Graeme Clark entitled *Sounds of Silence*, an autobiographical journey of cochlear implant research in Australia, inspired me to do my undergraduate thesis at the Bionic (Ear) Institute under the tutelage of Hugh McDermott. At that time, my signal-processing professor encouraged me to apply to graduate school in the United States. By the process of elimination (viz., which applications did not require me to take a GRE), I applied to MIT and was accepted to what was then the Harvard-MIT Speech and Hearing Biosciences and Technology (SHBT) program but without guaranteed funding as a foreign student. (I was lucky that my parents encouraged me to accept their admission offer and could afford to let me take the financial risk.) Once I arrived there, I knocked on

every professor's door to see whether I could volunteer in their laboratory and try to prove that eventually I would be worth funding as their research assistant, with little luck. Fortunately, before I left Sydney, Simon Carlile recommended that I look up Barbara Shinn-Cunningham when I got to Boston because she was a preceptor in the SHBT program. When I emailed Barb and mentioned Simon, she welcomed me with open arms. That led me to study auditory attention and steered my path away from my original plans to continue my work in cochlear implant research. After obtaining my doctorate with Barb, I briefly stepped away from hearing science and joined Massachusetts General Hospital, first in the Department of Psychiatry, then in Radiology, to learn neuroimaging techniques. During my time there, I was fortunate to receive a National Institutes of Health (NIH) Pathway to Independence Award (K99/R00). To celebrate, I planned a trip to the West Coast to visit some friends. During a stop in Seattle, Cara Stepp, who was then a postdoc at the University of Washington, decided to arrange meetings for me during my one-day visit, even though I was just planning to visit the Space Needle! Seeing that I would end up spending my day at the university instead, I decided to craft an email to Patricia Kuhl to see whether I could meet with her as well because I found out that a magnetoencephalography (MEG) center was being built at her institute. Pat replied within five minutes and said that unfortunately she'd be in Finland at a conference (with Barb) but forwarded a job advertisement and asked if I would be interested in a tenure-track job. Well, today I remain in Seattle, describing my career path after joining the Department of Speech and Hearing Sciences in 2011. I know this is a long-winded personal story, but I always find it fascinating that my career path has really been shaped by a series of lucky chance encounters with a number of kind people, peppered with different spur-of-the-moment decisions.

What is a typical day for you?

It depends whether it is a "research" day or a "teaching and administrative" day. I have two corresponding offices and with them being a 15-minute walk apart helps me partition my time. If I go to my research office, I generally spend time meeting with my students and postdocs, and occasionally, I have time to read and write. If I go to my teaching office, I prepare for class, teach, host office hours, and also work on my administrative duties for the department. With two young kids at home, I am in charge of drop-off duties so I generally try not to schedule meetings before 9:30 a.m. I set a goal to finish work by 5 p.m. so that I can spend time with my family after an hour-long commute. In the past few years

as a JASA CE, I also spend about 15-30 minutes/day to take care of editorial duties.

How do you feel when experiments/projects do not work out the way you expected them to?

First, disappointment. Then, after the grieving period is over, you remind yourself that data are data and you find a way to learn from it. Sometimes, you find unexpected explanations that would lead to new discoveries or avenues of research. But there are plenty of times when you realize what stupid mistakes you have made and then you learn from those. It is humbling to admit that this is the norm rather than the exception, having to learn through one's frequent mistakes.

Do you feel like you have solved the work-life balance problem? Was it always this way?

My wife has been really good at conditioning me to keep a good work-life balance. She knows that I hate losing bets, so she made a bet with me that I could not be home before 6 p.m. sharp in time for family dinner. Just to prove her wrong, I decided to leave work earlier and earlier so that I could make that deadline. Eventually, it became my routine. On the other hand, leaving my smartphone alone at home so that I can be present with my family remains a work in progress. Things were entirely different before I had kids; I would get to work before 9 a.m., leave after 6 p.m., and respond almost immediately to work-related emails in between. At the time, I thought I already had a work-life balance, at least compared with my postdoc hours in Boston. Now, I make a conscious effort to encourage our postdocs to strive for a real work-life balance such that they can have flexible hours to attend to their personal and family needs.

What makes you a good acoustician?

I find this to be a strange question. I would say that I am an inquisitive person and I happen to appreciate sound itself. Does that make me a good acoustician? I think an easier question to answer is what makes one a good mentor and by extension a good mentor in the field of acoustics: this would make that person a good acoustician. In my mind, a good mentor lifts their trainees up and fosters their career growth.

How do you handle rejection?

With a nip of rye! For a long time, we had a laboratory tradition to gather around and celebrate everyone's success and rejection alliteratively, with success scotch or rejection rye depending on the occasion. Now with me wanting to get home by 6 p.m. sharp (and many laboratory members having

their own families as well), these gatherings have become less frequent and less organized. I find that nowadays I internalize rejection more. But after I recover from that punch-in-the-gut disappointment, I remind myself that this is work and that paper/grant rejection is not a rejection of me as a person. I then go and hang out with my friends and family and remind myself what makes me happy. Finally, I turn back to the rejected work and determine how to learn professionally and make improvements on it. But I do sometimes miss those cathartic rye gatherings.

What are you proudest of in your career?

I aspire to be an effective administrator who can help move our collective higher education and research agenda forward, so I am proud whenever I manage to implement positive changes on spotting how a process can be improved. For example, when I was a graduate student and postdoctoral trainee, I was very involved in the Association for Research in Otolaryngology (ARO). Noticing that there was no student chapter for trainees, I helped initiate the student/postdoc chapter of ARO (spARO), emulating the well-run ASA student chapter. Some of my proudest moments nowadays are when I talk to trainees and realize that they wouldn't even think of a time when spARO was not part of ARO because they now take it for granted that spARO is the place for networking and obtaining career development information.

A more recent example would be my involvement in starting the CE program for *JASA*. A couple of years ago, like many authors, I started complaining about how long it would take for a manuscript to go through the *JASA* review process. Jim Lynch, editor in chief of *JASA*, noticed my complaints (through a Facebook post) and invited me to become an associate editor (AE) for the journal and join the ASA publication task force. I then discussed different potential solutions with many people. Ben Munson made a brilliant suggestion, and after pitching it to the task force, we decided to create the CE role, with me being the first guinea pig. This meant that I would be reading all the manuscripts submitted to the technical area of physiological and psychological (PP) acoustics and coordinate among the AEs to decide who would be the best choice to handle each manuscript (instead of relying on the rather archaic the Physics and Astronomy Classification Scheme [PACS] code). The addition of the CE role proved to be surprisingly effective, and with other changes implemented by the *JASA* editorial team, we managed to cut the review time by a whopping 40 days (see Lynch and Lee, 2017, in *Acoustics Today*). It was quickly adopted by other *JASA* technical areas beyond the PP area. I

am proud that the CE role will now become a permanent fixture in the *JASA* editorial process.

What is the biggest mistake you've ever made?

I only consider things mistakes if you don't learn from them, although I wish I knew more about graph theory and tensors.

What advice do you have for budding acousticians?

Always be passionate about what you do. Then infect others with the same passion you have about acoustics.

Have you ever experienced imposter syndrome? How did you deal with that if so?

Oh boy! If you asked me two years ago, I would say no. Then during my sabbatical year, imposter syndrome hit me like a train. Now it has come full circle. On reflection, I think I never experienced imposter syndrome before because I was just too busy working toward my next goal without taking time to really think. Then during my sabbatical, I had a lot of time and freedom to reflect. It turns out that when I have time to ponder questions such as "What do I really want to do now that I have tenure?" and "Who am I to think I can accomplish those lofty goals I have set for myself?" I started to spot symptoms of imposter syndrome. As I mentioned above, I do think a series of lucky coincidences got me to where I am career-wise, and that fed into the imposter syndrome. After my sabbatical year, this feeling of being a fraud has mostly subsided. Sure, I have less free time to listen to my self-doubting inner voice, being busy with my day-to-day research/teaching/administrative duties. But more importantly, I think I have become at peace with myself, realizing the following: (1) luck often plays a role in career development, but one can only take advantage of opportunities if you are prepared, so don't be too hard on yourself for feeling lucky; (2) on the flip side, sometimes when things don't work out, you're just unlucky, so don't be too hard on yourself about things that you do not have control of; (3) there's a fine line between self-doubt and levelheadedness; it's good to question yourself from time to time and employ sanity checks but not to a point that self-checking mechanisms become unnecessary mental roadblocks; and, most importantly, (4) only do things that make you happy in the long term; life is too short to do otherwise. It turns out that how in tune you are with what makes yourself happy is highly dependent on your cultural upbringing. Unfortunately, in many societies, happiness is often erroneously assumed to be equivalent by other indicators (e.g., good grades, high salary, awards, grant money). If you're free from the societal view of success but

instead pursue what makes you happy, it's harder to feel like an imposter!

What do you want to accomplish within the next 10 years or before retirement?

I want to make positive changes in research and higher education, with a particular emphasis on facilitating international collaborations. I believe that the globalization of academia is an inevitable evolution, but how we optimally leverage our collective expertise has yet to be worked out at the institutional level. I want to shape that future.

Selected Publications by Adrian KC Lee

Lee, A. K. C. (2017). Imaging the listening brain. *Acoustics Today* 13(3), 36-43. Available at <https://acousticstoday.org/imaging-listening-brain-adrian-kc-lee>.

Lee, A. K. C., Larson E., Maddox R., and Shinn-Cunningham, B. (2014). Using neuroimaging to understand the cortical mechanisms of auditory selective attention. *Hearing Research* 307, 111-120.

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Lynch, J. F., and Lee, A. K. C. (2017). The need for speed. *Acoustics Today* 13(2), 52-55. Available at <https://acousticstoday.org/wp-content/uploads/2017/06/2-lynch.pdf>.

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