

## **Kind Gestures: Longtime ACI Members Shape the Career of Younger Generations**

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Before setting the pen to paper to write this, I had a two-hour call today with Dr. Anna Lang who expressed an interest in collaborating on earthquake engineering research my team at Cal Poly has been working on for the better part of the last year. This interaction is a perfect example of how ACI has helped me build relationships and embark on projects that as a young faculty member I could have never envisioned when I got involved the ACI student chapter at University of Illinois at Urbana-Champaign and attended my first convention in Spring 2013.

Stories are best told when traced back to their origin. Thus, we will return to the Spring 2014 Reno convention, which I would not have been able to attend without the generous support of the ACI Scholarship Council to travel for a fellowship interview. The Reno convention marked my initial interaction with the ACI 133 Disaster Reconnaissance committee. At the time, I was still rather young in my doctoral studies related to the seismic response of reinforced concrete structural walls and just had completed the experimental phase of my research. For most ACI technical committees attending as a student visitor is like being a child at an adult dinner party, one is expected to be seen and not heard. ACI 133 was the exact opposite; perhaps because we were both young (ACI 133's first formal meeting was Fall 2013), but the more likely explanation has to do with the kind and encouraging people I met there who are now my professional family.

That Spring 2014 meeting the committee had been discussing external funding sources to deploy a team to instrument and collect data from earthquake damaged structures. I made a suggestion to my neighbor Dr. Anna Birely, an associate committee member, who passed along my idea to the chair for which she gave me credit. That was surprise #1. I will always respect Dr. Birely for acknowledging the value of my idea as a student, not just by making space for it to be heard but for referencing it as my contribution. Then came surprise #2. Without a pause and as natural as a reflex, the committee chair – Dr. Ken Elwood – turned to me and said something like “next time you have an idea the whole committee would like to hear it.” The meeting continued, ended, and folks went on to the rest of the convention. Surprise #3 was in the evening when I crossed paths with Dr. Elwood near the exhibit hall and he thanked me for attending the committee meeting and contributing my idea, then he expressed the hope that I would stay engaged with ACI 133.

Since Spring 2014, I have attended every ACI 133 committee meeting when I could make the trip to the ACI convention, which spurred further interactions with the committee members. A notable one being conversations with Past ACI President Luis Garcia, whose forensic investigation accounts helped me develop a case study on the Alfred P. Murray building for the reinforced concrete design course I taught at Illinois during my PhD. Another took place prior to the Fall 2017 ACI convention when I emailed the current chair, Dr. Mike Kreger, requesting time to present our Cal Poly research which he greenlighted with enthusiasm. This was another surprise, since I had simply been hoping that my request, as a non-voting member, would not be turned down. His decision set into motion events that led to today's meeting with Dr. Lang.

At the Fall 2017 ACI 133 meeting, one of my undergraduate students and I presented research progress from our team at Cal Poly. The work was largely motivated by needs I identified

following previous ACI-funded post-earthquake reconnaissance missions to Nepal and Taiwan. One product we shared was a software tool our team had developed to facilitate rapid tagging of images taken of structural damage to reinforced concrete buildings, the other was the promising results we had in implementing machine learning to automatically tag specific damage-structure pairs in the images. After our Q&A when the committee attendees broke off into casual discussions, Dr. Anna Lang introduced herself as a graduate of architectural engineering (my department) at Cal Poly and indicated that her post-doctoral research had been in image sciences, similar to the research problem we were trying to address. Handing me her card she said that she would like to talk more about the work we were doing. I would later come to find out that Dr. Lang is one of the 35-member FEMA National Advisory Council and had a strong history of earthquake engineering work with Miyamoto International and NIST.

Today, a little over two months after our first meeting at ACI 133, Dr. Lang and I had a detailed discussion of external entities the Cal Poly team might collaborate with and how we could plan our research path forward to provide critical information to municipalities, federal, and even non-profit organizations for emergency response and to prioritize building inspections, among other tasks. She helped me see the potential broader impacts of our work that I had not even realized were possible. I admire her for sharing her knowledge and time, but even more for her enthusiasm, wittiness, and humble demeanor.

The meeting with Dr. Lang is one among many positive outcomes of my interactions at ACI (and specifically ACI 133) that have impacted my professional development. Others include Dr. Santiago Pujol, a committee member, reaching out to me after the Mexico earthquakes inviting me to collaborate with him and four other faculty, including Dr. Kreger, in submitting an NSF RAPID proposal. The proposal proved successful and enabled reconnaissance work shortly after the earthquake with plans for continued collaborations until the end of 2018. Another example is after hearing our research presentation, Concrete International editor-in-chief Dr. Rex Donahey contacted our Cal Poly research team to prepare a primer on machine learning applications related to concrete infrastructure. Time and again, seasoned ACI members have gone out of their way to extend a hand to me and fellow young members. Quite often I think back to my many interactions with them as a model on how to mentor my own students or new ACI members.

So you ask me has ACI assisted/contributed to my typical workday, work week, or career...?

Any faculty that teaches reinforced concrete design, as I do, will tell you that we reference the ACI 318 Building Code in nearly every class lecture. A paper copy is permanently in my teaching tote and a PDF accessible via my smartphone and laptop (necessary for addressing the student questions that appear in my inbox at all hours of the day and night). To add to that, participating in ACI conventions enables me to attend technical committee meetings and having access to online resources informs me of the research underlying code provisions. My job as a concrete design educator is to teach beyond what is physically written in the code, to reveal the larger body of work that drives these provisions, as well as share the names and stories of current and past the ACI members who have led the evolution of our field.

Beyond the impact of the ACI in my role as an educator, it has been significant in shaping my everyday research pursuits and forming an extended network with expert engineers and faculty. The intent of sharing the previous story of my experience with ACI 133 and meeting Dr. Lang demonstrates how the Institute provides a welcoming environment where I have been able to create strong bonds with many supportive and caring subject experts – my professional family. These individuals are mentors and have welcomed me as a research collaborator. I have tremendous respect for them; it is their faith and investment in me that brought many new exciting and challenging opportunities into my life. To close, I wish to thank and celebrate the ACI members and the Institute that positively influence my career with each step I take forward.