

## Early Career Members

# Nothing Is Impossible

by Xia Zhu

The date was 15 Nov. 2010. It was China's midnight and America's morning. I was about to descend from the sky to land in San Francisco with two suitcases and the realization that I was not in my homeland anymore. The words "nothing is impossible" were rushing through my head and have carried me up to this moment.

My supervisor, Dr. Horwath, picked me up at the airport and drove me to Davis, CA—a small, beautiful, and peaceful place. Shortly after arriving, I realized life in America would be more difficult than I could have imagined it would be. Everything was so different from my hometown—a remote small village in Southeast China:

air, food, smells, culture, people, language, and much more. Language was my biggest obstacle.

During those first days, I cried a lot. I went to the grocery store and came home with bags of food that I had no idea how to prepare or eat. I went to the laboratory and tried to work but could not find the needed materials to start an experiment and nobody to understand my attempt at speaking English to find them. When I was introduced at a lab meeting, I stood up instinctively, understanding my name and little else. Covered by fear, my world seemed to be collapsing. I cried very hard at night and didn't want to see anyone in the days following this. Worst of all, I could not communicate my research plans and

ideas with Dr. Horwath and do what I came to America to do.

## Overcoming Communication Barriers

Life had to continue, so I decided to face it. To overcome communication barriers, I recorded conversations and listened to them again and again—until I totally understood the content. This approach helped a lot, not only with my English, but with my research as well. Once my communication skills increased, life progressively improved, and I realized that crying was no longer a needed outlet.

As time progressed, research and the atmosphere in the Horwath Lab

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*Dig It!* was created with the support of the Soil Science Society of America and the Nutrients for Life Foundation, which is underwritten by The Fertilizer Institute.

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became more pleasant, although it didn't start that way. In the beginning, there was panic at not having identified scientific questions or research to address; I felt like a newborn baby. I found interesting topics, read a lot, and wrote down everything in a book my labmate named "Xia's Bible," since I carried it with me all the time. Fortunately, supportive labmates, freedom to pursue ideas, and many planned and unplanned stops by Dr. Horwath's office helped me to adjust and prepare for what lay ahead.

My first Chinese New Year in Davis was a strong test. It was midnight in the U.S., but morning in China with

everyone celebrating Chinese New Year and enjoying the time with family. I, on the other hand, was sitting in front of the GC instrument injecting gas samples one by one. A simple question ran through my head: Why had I left my homeland to come here and suffer from so much loneliness? The answer must be in my research!

## The Joy of Discovery

This notion has rung true for me multiple times with exciting discoveries and accomplishments. Late one night while processing some data recently exported from the GC, it became clear to me that acetylene strongly inhibits nitrous oxide production under low oxygen conditions! These results proved our unresolved hypothesis and represented a major piece of information yet unreported in the literature. I was thrilled—running into the hallway yelling (in English) "I got it!" Nobody was in the building, so my yell echoed throughout the halls. Although still alone now, it was not such a scary feeling!

Since English is not my first language, writing is difficult, and I have

spent a lot of time preparing and refining manuscripts. Long hours were spent reading and thinking before any words were written. After completing my first manuscript draft, I put it aside for a week before any revision. After several revisions, my co-author Martin Burger and I spent time going over the manuscript word by word. This was a long and often dispiriting process, but whenever I felt like giving up, the words "nothing is impossible" popped into my mind, and I kept going. This process was fruitful with the paper eventually getting published in *PNAS*.

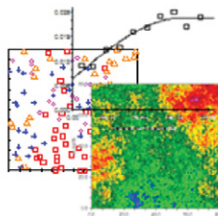
Perhaps the last seemingly impossible hurdle was giving a clear and understandable presentation at a professional meeting. A strong accent and growing English vocabulary were a major issue. Like the experience of recording conversations, video recordings of me were an important tool to help me understand my body movements and presence on stage. I practiced and practiced until every word was clear. This perseverance also had its reward as I received the Outstanding Student Presentation Award at the 2012 fall meeting of the American Geophysical Union.

Coming to America has had its struggles—early on I cried often, doubted myself, and wondered why I was here. Through it all, hard work and friendship helped me, but arriving with the idea that "nothing is impossible" was a guiding light and path to success.

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