

# Spotlight on CS PD in rural communities: Jiang Li

Learn how Jiang Li of Quincy University identified CS PD needs in his rural community, and review his tips for other aspiring PD providers and applicants.

Jiang Li is an associate professor of Computer Science at Quincy University. Li has been teaching a wide range of CS courses for more than 8 years. Li's research interests are machine learning, image processing, big data and cloud computing. Li is dedicated to promoting CS education in his region. He is a member of IEEE Computer Society, ACM and SIGCSE



## What advice would you give to an aspiring CS PD provider?

- “Reach out to educators in a variety of ways
- Schedule in-person PD wisely to be mindful of educators’ time and location
- Provide hybrid in-person and online PD opportunities
- Build a community that supports educator teaching throughout the academic year
- Scaffold content appropriately
- Start with something interesting and focus on building confidence first
- Do not be afraid of trying new approaches, and be willing to learn from mistakes”

## What advice would you give to an aspiring applicant?

- “Collaborate with local/regional school districts
- Collaborate with other CS education organizations
- Learn from other successful PD events
- Think about the sustainability and scalability”

## What issue(s) were you hoping to solve in your community, and how did you know that CS professional development for educators was an important solution?

“In my rural tri-state (IL-MO-IA) area, students have less of a chance to learn and explore CS. After talking to some educators from local districts, I learned that there are very few resources allocated to promote CS education. On the other hand, I have met many talented students that are eager to explore and study CS if they are given the opportunity. Many educators are willing to teach CS so their students won’t be deprived of the opportunity to compete with others for future careers, but they don’t know where to start. I believe every student deserves an opportunity to explore CS at the K-12 level, whether they are from an urban or rural area, big or small school, rich or poor family. As a result, I decided to do something to try to promote K-12 CS education in my region - and I believe providing professional development to educators is the most effective and efficient solution.”

## What were the first steps you took to start a local CS educator PD opportunity in your rural community?

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“In collaboration with our local school district, I applied for Google’s CS Educator Grant for the 2016-2017 academic year. First, to guarantee the success of our PD from a content perspective, we tried to gather, study and organize as many CS resources as possible, from other organizations and past successful PD. Second, to guarantee the impact of our CS PD, we reached out to as many regional educators as possible, who are interested in bringing CS content to their classrooms. Third, to make it easier to organize follow up PD events, and share experiences and information within the community, we began building our own regional CS educator community.”

## What are some of the challenges you’ve encountered with CS PD in a rural community, and how are you working to overcome those challenges?

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“A challenge we’ve encountered in our community is scheduling PD based upon the availability of the educators. In our rural region, most schools do not have a specific CS teacher; many instructors have multiple roles in their schools. They usually will not have time to attend in-person meetings during the academic year. We solved this problem by starting our PD with an in-person workshop during summer vacation, before the fall semester, then followed up with online content during the semester to provide educators with ongoing support.

Also, most educators, especially those who’ve never taught CS and/or learned CS themselves, do not have the experience to develop their own CS-related class content. As a solution to this challenge, we provide sequences of content that educators can directly implement in their classrooms.”

## How has your CS PD evolved over time, and why?

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“Since most instructors who attended our PD had no CS background, we had to start with very fundamental concepts and knowledge, instead of advanced topics such as algorithms and programming. We want to build the confidence to teach CS among the instructors first. Over time, some advanced topics have been added to our PD.

Another trend we’ve identified is that we started to extend CS education from middle school and high school to elementary school. We are doing this to build a stronger pipeline, so the fundamental concepts can be introduced to students at an earlier stage, making room for advanced topics at the high school level. As a result, we started to collaborate with more CS education-related organizations.”

## What has been the most important element of your CS PD work, and why?

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“The most important element of our CS PD work has been creating and growing the educator community that cares about CS education in our region. Without these educators, it is impossible to promote CS education in our region. Since schools in our rural community often are great distances apart with only one CS educator per school, it is even more important for them to have a close community. It allows these educators to share their teaching experiences, observe each other teach, provide frequent feedback on teaching, design classes together and teach one another.”