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# Computational Thinking...and Doing

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## COMPUTATIONAL THINKING ... AND DOING

George K. Thiruvathukal, Associate Editor in Chief




AT OUR MOST RECENT *CiSE* MEETING, ONE OF THE BOARD MEMBERS APPROACHED ME DURING A SHORT BREAK AND ASKED: “WHY DO YOU DO THIS? YOU SEEM TO HAVE BETTER THINGS TO DO.” SEEKING CLARIFICATION, I CAME TO UNDERSTAND THAT HE WAS WONDERING WHY A COMPUTER

scientist such as myself would want to be on the editorial board of a publication that isn’t necessarily focused on the “tradition” of computer science. Then and there, I realized that a computer scientist’s role is something worth explaining and understanding.

Much has been made recently of *computational thinking*, a term coined by Jeanette Wing at the US National Science Foundation.<sup>1</sup> While I have my doubts about the term’s longevity,<sup>2</sup> it struck me as an excellent starting point for explaining what a computer scientist is and does, especially in the *CiSE* context. Computer scientists are an increasingly important part of interdisciplinary—or *multidisciplinary*, a term I prefer—problem solving. We help others understand the merits of bringing the right methods (algorithms), architecture/design (software engineering), and programming tools (languages and systems) and techniques (visualization) to science and engineering applications. So, as I see it, computer scientists bring a panoply of options to the table that enhance multidisciplinary research. If you will, we’re about computational doing—and doing it right. As the former *Chez Thiruvathukal* in Scientific Programming, I like to view computer science’s various ideas as the masala found in my (and possibly your) favorite curries.

This brings me back to why I’m here. I’ve always had an eye to applying computer science to other disciplines, scientific and otherwise. In the past few months, I’ve begun working on two new (funded) projects—one addresses healthcare (modeling health issues in social networks using agent-based simulation) and the other addresses digital humanities (developing collaborative tools for textual studies). In both cases, computer science plays a critical role in that both projects have expected software and experimental outcomes. I don’t always write about my other disciplinary interests in *CiSE*, but given my emphasis on programming and emerging technologies, it’s comforting to know that I’ve joined a group of people committed to exploring the intersections with and showing respect for other disciplines. For the sake of scholarship and meaningful discourse, we need more places like *CiSE*, and we must keep the

content fresh and exciting—even during these challenging times when all publications face enormous challenges. Although not among the largest publications at either the IEEE Computer Society or AIP, *CiSE* continues to have a loyal following. As volunteers, we hope that you’ll stick with us, because the best is yet to come.

Along the lines of keeping things relevant, we do want to hear from you, our dear readers. Please let us know what we can do better, even if you like most everything we do. We always welcome suggestions for improvements and ideas for special issues. And, if you read an article and find it truly exceptional, I’d like to know about it. This is especially important now, as I’m also serving as associate editor in chief for Computing Now ([computingnow.computer.org](http://computingnow.computer.org)), which aims to enhance the profile of IEEE CS publications in the dot-social world. On Computing Now, we try to include at least one article from each *CiSE* issue to raise awareness among nonsubscribers of the great work we do. Getting tips from *CiSE* readers about which articles to highlight is particularly welcome so the decision isn’t entirely left to us. I welcome your feedback via email ([gkt@cisemagazine.org](mailto:gkt@cisemagazine.org)). I’m also becoming a fan of more social forms of communication; you can follow me on Twitter at [gkthiruvathukal](https://twitter.com/gkthiruvathukal). 

### References

1. J. Wing, “Computational Thinking,” *Comm. ACM*, vol. 49, no. 3, 2006, pp. 33–35.
2. P. Denning, “Beyond Computational Thinking,” *Comm. ACM*, vol. 52, no. 6, 2009, pp. 28–30.

**George K. Thiruvathukal** is an associate professor of computer science and codirector for the newly formed Center for Textual Studies and Digital Humanities at Loyola University Chicago, as well as associate editor in chief of *CiSE* and associate editor in chief of Computing Now. Contact him at [gkt@cisemagazine.org](mailto:gkt@cisemagazine.org) or via <http://gkt.etl.luc.edu>.