The Renaissance Computing Initiative at the University of Nebraska

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In the narrowest sense, "computational thinking" is the mindset that students need to acquire in order to work effectively with computational systems. More broadly, however, it is a way of understanding the world – one that transcends mere methodology and which is likewise transportable across a wide variety of human endeavors. In our view, computer science curricula that do not address this broadening do not address the ways in which computational thinking pervades life in the modern world.

Here at the University of Nebraska, we have embarked on a broad-based curricular and program revision initiative called Renaissance Computing. In our conception, "computational thinking" is neither easily separated from other endeavors nor easily balkanized into a single department. We thus imagine a CS program that is inextricably linked to other domains. We further understand these domains to include not only the subjects ordinarily thought of as cognate with computational thinking (such as bioinformatics), but with such notions as "humanities computing," "arts computing," and "music computing." Furthermore, we postulate that students of different disciplines will be able to benefit from each other through collaborative activities and cross-pollination of ideas.

Biosketch:

Dr. Leen-Kiat Soh received his Ph.D. in Electrical Engineering with Honors from the University of Kansas. Dr. Leen-Kiat Soh is currently an Associate Professor at the Department of Computer Science and Engineering of the University of Nebraska.

Research Interests:

His research interests are in multiagent systems, computer-aided education, and computer science education. He is the PI of the NSF-funded Renaissance Computing project, which aims at improving CS curriculum for CS majors and non-majors, particularly addressing CS1 courses and revitalized CS minor programs. He has published his work in conferences such as AAAI, IAAI, AAMAS, SIGCSE, and ITiCSE, and in journals such as the Journal of Autonomous Agents and Multiagent Systems, Computer Science Education, International Journal of AI in Education, and IEEE Transactions.