INTERDISCIPLINARY COMPUTER SCIENCE COURSES: LESSONS LEARNED

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ABSTRACT

In 2007, the National Science Foundation (NSF) funded 19 "Community Building" awards[1] intended to "bring stakeholders together to discuss the challenges and opportunities inherent in transforming undergraduate computing education, and to identify creative strategies to do so."[2] Our "creative strategy" has been to develop interdisciplinary courses that bring Computer Science (CS) majors together with Art, Music, and Theatre majors to work on joint projects in the area of exhibition and performance technologies. We call this strategy "Performamatics," because the common thread in these projects is that "many tasks, performed by multiple people, must come together on a tight schedule by a specific date to achieve a desired result. Performamatics also implies that each team member must 'perform' his or her task in a way that can be integrated into a final product, regardless of whether that team member participates visibly in the culminating event."[3]

This presentation discusses the successes and failures we have experienced in trying to implement Performamatics courses over the last two years. In that time we have experimented with two pedagogical models: (a) "synchronized" courses in which students in different disciplines come together at strategic points to work on joint projects, and (b) "hybrid" courses in which all students enroll in a single course that has two instructors, one from Computer Science and one from Art, Music, or Theatre.[4] The presentation will describe the content of these courses, provide examples of student work, and suggest ways in which both the student and professor collaborations could be improved, all with the intent to provide others with solid guidance on implementing similar strategies at their own institutions.

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[1] NSF (2007a). NSF CPATH 2007 Award Portfolio. Available at http://www.nsf.gov/cise/funding/CPATH-2007awardsfinal.pdf [30 Dec. 2008].

[2] NSF (2007b). CISE Pathways to Revitalized Undergraduate Computing Education (CPATH) Program Solicitation. NSF Document No. 06-608.

[3] Heines, J.M., Jeffers, J., & Kuhn, S. (2008). Performamatics: Experiences With Connecting a Computer Science Course to a Design Arts Course. *The International Journal of Learning* 15(2):9-16. Available at http://teaching.cs.uml.edu/~heines/academic/papers/2008learning/AsPublished-IntlJrnlLearning.pdf [30 Dec. 2008].

[4] Heines, J.M., Greher, G.R., & Kuhn, S. (2009, upcoming). Music Performamatics: Interdisciplinary Interaction. ACM SIGCSE 40th Technical Symposium on CS Education. Chattanooga, TN, March 7, 2009. Available at http://teaching.cs.uml.edu/~heines/academic/papers/2009sigcse/fp119-heines.pdf [30 Dec. 2008].