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Award Abstract #0722161

CPATH CB: Performamatics: Connecting Computer Science to the Performing, Fine, and Design Arts

NSF Org:	CNS Division Of Computer and Network Systems
Initial Amendment Date:	July 12, 2007
Latest Amendment Date:	May 26, 2009
Award Number:	0722161
Award Instrument:	Standard Grant
Program Manager:	Harriet G. Taylor CNS Division Of Computer and Network Systems CSE Direct For Computer & Info Scie & Enginr
Start Date:	July 1, 2007
End Date:	June 30, 2010 (Estimated)
Awarded Amount to Date:	\$421,087.00
Investigator(s):	Jesse Heines heines@cs.uml.edu (Principal Investigator) Fred Martin (Co-Principal Investigator) Karen Roehr (Co-Principal Investigator) James Jeffers (Co-Principal Investigator) Gena Greher (Co-Principal Investigator) Wanda Strukus (Former Co-Principal Investigator)
Sponsor:	University of Massachusetts Lowell Research Foundation 600 Suffolk Street Lowell, MA 01854-3692 (978)934-4723
NSF Program(s):	CPATH
Program Reference Code(s):	9218, HPCC, 9178, 9251, 7218, 7640
Program Element Code(s):	7640

ABSTRACT

Abstract

CNS-0722161

PI: Jesse Heines

Institution: University of Massachusetts Lowell

Title: CPATH CB: Performatics: Connecting Computer Science to the Performing, Fine, and Design Arts

This CPATH project builds a community engaged in integrating computing with performing and fine arts. Building on an existing infrastructure, the traditional computer science curriculum is revitalized by streamlining the core computer science courses and developing an interdisciplinary major focused on arts and humanities. Artbotics and performatics students and faculty work together in a multi-disciplinary teams supported by a regional group of project advisors and collaborations representing active museums, theaters, engineering, computer science professional organizations in the area. The project group centered at Massachusetts Lowell will then reach out to build a community of practitioners through workshops, conference events, and an alliance with the National Center for Women and Information Technology.

The intellectual merit of this project lies in strong project team and the expertise of the collaborative partners participating in the project. The project features an extremely comprehensive assessment plan that should provide concrete insights that are of great value. The project has the potential to articulate the connections between computer science and the arts thus enhancing the overall discipline of computing.

The broader impacts of the project lie with the potential to enhance the education and opportunities of a broader group of students and region. The community outreach component builds capacity nationally to revitalize computing education and thus directly impact the computing education of students and faculty across the nation. The project can serve as a national model for blending computer science with other arts and humanities disciplines.

PUBLICATIONS PRODUCED AS A RESULT OF THIS RESEARCH

Heines, J.M., Jeffers, J., & Kuhn, S.. "Performatics: Experiences With Connecting a Computer Science Course to a Design Arts Course," *The International Journal of Learning*, v.15, 2008, p. 9.

Martin, F., Greher, G.R., Heines, J.M., Jeffers, J., Kim, H.J., Kuhn, S., Roehr, K., Selleck, N., Silka, L., and Yanco, H.. "Joining Computing and the Arts at a Mid-Size University," *Journal of Computing Sciences in Colleges*, v.24, 2009, p. 87.

CONFERENCE PROCEEDINGS PRODUCED AS A RESULT OF THIS RESEARCH

Ruthmann, A; Heines, JM; Greher, GR; Laidler, P; Saulters, C. "Teaching Computational Thinking through Musical Live Coding in Scratch," in *41st ACM Technical Symposium on Computer Science Education.*, 2010, p. 351-355. [View record at Web of Science](#)

Martin, FG; Roehr, KE. "Cultivating Creativity in Tangible Interaction Design," in *ACM SIGCHI Conference on Creativity and Cognition 2009.*, 2009, p. 393-394. [View record at Web of Science](#)

BOOKS/ONE TIME PROCEEDING

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Greher, G., & Heines, J.M.. "Connecting Computer Science and Music Students to the Benefit of Both", 07/01/2007-06/30/2008, 2008, "Association for Technology in Music Instruction (ATMI) 2008 Conference, Atlanta, GA, September 25-28, 2008."

Heines, J.M., & Jeffers, J.. "Performatics: Experiences With Connecting a Computer Science Course to a Design Arts Course", 07/01/2007-06/30/2008, 200, "Learning Conference 2008, University of Illinois, Chicago, June 3-6, 2008."

Heines, J.M. (organizer), Jeffers, J., Goldman, K., Fox, E., & Beck, R.. "Panel on Interdisciplinary Approaches to Revitalizing Undergraduate Computing Education", 07/01/2007-06/30/2008, 2008, "Consortium for Computing Sciences in Colleges Northeastern Region (CCSCNE) 2008 Conference, Staten Island, NY, April 11-12, 2008."

Greher, G., & Heines, J.M.. "Connecting Computer Science and Music Students to the Benefit of Both", 07/01/2008-06/30/2009, 2008, "Association for Technology in Music

Instruction (ATMI) 2008 Conference, Atlanta, GA, September 25-28, 2008."

Heines, J.M., & Jeffers, J.. "Performamatics: Experiences With Connecting a Computer Science Course to a Design Arts Course", 07/01/2008-06/30/2009, 200, "Learning Conference 2008, University of Illinois, Chicago, June 3-6, 2008."

Heines, J.M. (organizer), Jeffers, J., Goldman, K., Fox, E., & Beck, R.. "Panel on Interdisciplinary Approaches to Revitalizing Undergraduate Computing Education", 07/01/2008-06/30/2009, 2008, "Consortium for Computing Sciences in Colleges Northeastern Region (CCSCNE) 2008 Conference, Staten Island, NY, April 11-12, 2008."

Greher, G.R., & Heines, J.M.. "Sound Thinking: Conceptualizing the Art and Science of Digital Audio for an Interdisciplinary General Education Course", 07/01/2008-06/30/2009, 2009, "Association for Technology in Music Instruction (ATMI) 2009 Conference, Portland, OR, October 24, 2009."


Martin, F., Greher, G.R., Heines, J.M., Jeffers, J., Kim, H.J., Kuhn, S., Roehr, K., Selleck, N., Silka, L., and Yanco, H.. "Joining Computing and the Arts at a Mid-Size University", 07/01/2008-06/30/2009, 2009, "Proceedings of the 2009 Conference of the Consortium for Computing Sciences in Colleges -- Northeastern Region (CCSCNE 2009). Plattsburgh, NY, April 24, 2009. Also to appear in the".

Heines, J.M., Greher, G.R., & Kuhn, S.. "Music Performamatics: Interdisciplinary Interaction", 07/01/2008-06/30/2009, 2009, "ACM SIGCSE 40th Technical Symposium on CS Education. Chattanooga, TN, March 7, 2009".

Greher, G., & Heines, J.M.. "Connecting Computer Science and Music Students to the Benefit of Both", 07/01/2009-06/30/2010, 2008, "Association for Technology in Music Instruction (ATMI) 2008 Conference, Atlanta, GA, September 25-28, 2008."

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