David A. Joyner

Personal Information

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Education

Ph.D. in Human-Centered Computing, Georgia Tech, 2009-2015
Specializing in Learning Sciences & Technology

M.S. in Human-Computer Interaction, Georgia Tech, 2008-2009

B.S. in Computer Science, Georgia Tech, 2005-2008
Certificate in Social & Personality Psychology
Specializing in People & Media

Research Experience

Georgia Institute of Technology, August 2009 – December 2014
“Fostering Complex Systems Learning in Early Science Education”
Supervised by Principal Investigator Dr. Ashok Goel.

Georgia Institute of Technology, August 2008 – May 2009
"A Language-Neutral Assessment for Introductory CS Knowledge"
Supervised by Investigators Allison Tew and Dr. Mark Guzdial.

Georgia Institute of Technology, January 2008 – April 2008
“Investigating the Effects of Variously Moded Educational Materials on Learning”
Supervised by Principal Investigator Dr. Jim Foley.

Awards

Georgia Tech College of Computing Outstanding Graduate Teaching Assistant Award; Presented in April 2015 for work on CS7637: Knowledge-Based AI in Fall 2014.
Georgia Tech President’s Fellowship; Presented in August 2009.

Work Experience

Udacity, Mountain View, CA; General Course Manager; December 2014 – Present
Udacity, Mountain View, CA; Course Developer; February 2014 – Present
Georgia Tech, Atlanta, GA; Graduate Research Assistant; August 2008 – January 2015
Georgia Tech, Atlanta, GA; Graduate Teaching Assistant; August 2012 – December 2012
QOil, Atlanta, GA; User Interface Designer; June 2008 – December 2008
Media Technology Solutions; Norcross, GA; User Interface Designer; May 2006 – May 2008
Self-Employed, Atlanta, GA; Private Tutor; August 2003 – January 2014

Publications

Book Chapters

Goel, A., Rugaber, S., **Joyner, D. A.**, Vattam, S., Hmelo-Silver, C., Jordan, R., Sinha, S., Honwad, S., & Eberbach, C. (2013). Learning Functional Models of Aquaria: The ACT Project on Ecosystem Learning in Middle School Science. In R. Azevedo & V. Aleven (Eds.) *International Handbook on Meta-Cognition and Self-Regulated Learning*, 545-559. New York: Springer.

Journal Articles

Wu, A., **Joyner, D. A.,** & Do, E. Y. (2010). Move, Beam, and Check! Imagineering Tangible Optical Chess on An Interactive Tabletop Display. *ACM Computers in Entertainment 8*(3). (ACE 2010 Best paper award)

Conference Papers

Joyner, D. A. & Goel, A. (2015). Organizing Metacognitive Tutoring Around Functional Roles of Teachers. In *Proceedings of the 37th Annual Cognitive Science Society Meeting*. Pasadena, California.

Joyner, D. A. & Goel, A. (2015). Improving Inquiry-Driven Modeling in Science Education through Interaction with Intelligent Tutoring Agents. In *Proceedings of the 20th International Conference on Intelligent User Interfaces.* Atlanta, Georgia.

Joyner, D. A. & Goel, A. (2014). Attitudinal Gains from Engagement with Metacognitive Tutors in an Exploratory Learning Environment. In *Proceedings of the 12th International Conference on Intelligent Tutoring Systems*, 627-628. Honolulu, Hawaii.

Joyner, D. A., Goel, A., & Papin, N. (2014). MILA–S: Generation of agent-based simulations from conceptual models. In *Proceedings of the 19th International Conference on Intelligent User Interfaces*, 289-298. Haifa, Israel.

Joyner, D. A., Majerich, D., & Goel, A. (2013). Facilitating authentic reasoning about complex systems in middle school science education. In *Proc. of 11th Annual Conference on Systems Engineering Research*, 1043-1052. Atlanta.

Joyner, D. A., Goel, A., Rugaber, S., Hmelo-Silver, C., & Jordan, R. (2011). Evolution of an Integrated Technology for Supporting Learning about Complex Systems: Looking Back, Looking Ahead. In *Proc. Of 11th International Conference on Advanced Learning Technologies*, 257-259. Athens, Georgia.

Hmelo-Silver, C., Jordan, R., Honwad, S., Eberbach, C., Sinha, S., Goel, A., Rugaber, S., & **Joyner, D. A.** (2011). Foregrounding Behaviors and Functions to Promote Ecosystem Understanding. In *Proc. Ninth Hawaii International Conference on Education*.

Goel, A., Vattam, S., Rugaber, S., **Joyner, D. A.,** Hmelo-Silver, C., Jordan, R., Honwad, S., Gray, S., & Sinha, S. (2010). Learning Functional and Causal Abstractions of Complex Systems. In *Proc. of the 32nd Annual Meeting of the Cogntive Science Society*. Portland, Oregon.

Honwad, S., Hmelo-Silver, C., Jordan, R., Eberbach, C., Gray, S., Sinha, S., Goel, A. K., Vattam, S., Rugaber, S., & **Joyner, D. A.** (2010). Connecting the Visible to the Invisible: Helping Middle School Students Understand Complex Ecosystem Processes. In *Proceedings of the 32nd Annual Meeting of the Cognitive Science Society*, 133-138. Portland, Oregon.

Joyner, D. A., Wu, C. & Do, E. Y. Tangible optical chess: a laser strategy game on an interactive tabletop. In *Proc. of the 8th international Conference on Interaction Design and Children*, Como, 278-279. ACM Press.

Workshop Papers

Goel, A. & **Joyner, D. A.** (2014). Computational Ideation in Scientific Discovery: Interactive Construction, Evaluation, and Revision of Conceptual Models. In *Workshops at the Twenty-Eighth AAAI Conference on Artificial Intelligence.* Quebec City, Quebec.

Goel, A. K., Kunda, M., **Joyner, D. A.**, & Vattam, S. (2013). Learning about Representational Modality: Design and Programming Projects for Knowledge-Based AI. In *Fourth AAAI Symposium on Educational Advances in Artificial Intelligence*, 1586-1591.

Joyner, D. A., Goel, A., & Majerich, D. (2013). Metacognitive Tutoring for Scientific Modeling. In AIED 2013 Workshop Proceedings: Scaffolding in Open-Ended Learning Environments, 37-40. Memphis, Tennessee.