

Zachary Dodds

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Leonard-Johnson-Rae Professor of Computer Science

Harvey Mudd College 301 Platt Boulevard; Claremont, CA 91711

Professional Preparation

B.A., Mathematics, Yale University, New Haven, CT 1991

Thesis: Secondary School Mathematics Education and Certification

M.S., Computer Science, Yale University, New Haven, CT 1997

Ph.D., Computer Science, Yale University, New Haven, CT 2000

Thesis: Task Specification Languages for Uncalibrated Hand-eye Coordination

Appointments

Leonard-Johnson-Rae Professor of Computer Science, HMC, 2014-

Professor of Computer Science, HMC, 2011-2014

Associate Professor of Computer Science, HMC, 2006-2011

Assistant Professor of Computer Science, HMC, 1999-2006

Recent CS-education publications

B. Castro '18, T. Diaz '17, M. Gee '18, R. Justice '18, D. Kwan '18, P. Seshadri '18, and Z. Dodds. *MyCS at 5: Assessing a Middle-years CS curriculum*, SIGCSE 2016, Memphis, TN, Mar. 2-5, 2016.

E. Schofield, M. Erlinger, and Z. Dodds. *MyCS: CS for middle-years students and their teachers*, SIGCSE 2014 Atlanta, GA, Mar. 5-8, 2014.

C. Alvarado, Z. Dodds, and R. Libeskind-Hadas. *Broadening Participation in Computing at Harvey Mudd College*, *ACM Inroads* 3(4), December 2012.

C. Alvarado and Z. Dodds, *Women in CS: An evaluation of three promising practices*. In the Proceedings of the 23rd annual CS education symposium (SIGCSE 2010) March 10-13, Milwaukee, WI. ACM Press.

Z. Dodds, R. Libeskind-Hadas, and E. Bush. *When CS1 is Biology1: Crossdisciplinary collaboration as CS context*. Proceedings, ITiCSE '10: Annual Conference on Innovation and Technology in Computer Science Education. June 28-30, 2010, Ankara, Turkey.

Recent student-coauthored publications

Tenorio, D. '17, Medina, J. '18, Rivera, V. '17, Leondar, A. '17, Gaumer, M. '19, and Dodds, Z., *Visual Autonomy via 2D Matching in Rendered 3D Models*, Proceedings, Int. Symposium on Visual Computing (ISVC '15) Dec. 13-15, 2015, to appear.

Booth, J. T. '15, Jones, J. '15, Schaeffer, K. '15, Woodall, K. '15, Kumar, R. '13, Dodds, Z., and Donelick, R. *Mapping for Microscopes: Automating Apatite-Image Handling*, poster presentation at Goldschmidt 2015, Prague, Czech Republic, August 24-28, 2015

J. Allard '16, A. Rich '16, I. Aguilar '16, and Z. Dodds. *Robot Spatial Reasoning Via 3D Models*, Proceedings, ICMCSSE, Montreal, Quebec, May 2015.

Z. Dodds, K. Ming '15, C. Eriksen '15, S. Hsiung '16, X. Huang '16, and Z. Davidson '16. *A computational focus for robotics education*, 2014 AAAI Spring Symp. on Knowledge Representation and Reasoning in Robotics (KRR '14). Stanford, CA, Mar. 24-25, 2014

N. Berezny, '12, B. Jensen, '13, L. de Greef '12, M. Sok, '13, K. Sheely '12, and Z. Dodds. *Accessible Aerial Autonomy*, Proceedings, IEEE International Conference on Technologies for Practical Robot Applications, Boston, MA. April 23-24, 2012.

Synergistic activities

Co-founder, MyCS: Middle-years computer science

Having piloted a middle-school-targeted CS curriculum for two years under the auspices of Google's CS4HS program, co-PI Michael Erlinger and I began expanding MyCS's reach with NSF support. Each year since the summer of 2013 I have led two week-long workshops for K-12 teachers; in turn, they have taught our MyCS CS curriculum to more than 6,000 students. With San Francisco USD adopting the curriculum for all of their middle schools in 2016-2017 (one-half piloted in '15-'16), the student numbers will grow more quickly. Our primary partnering districts, Pomona, CA Unified and Kauai's in Lihue, HI, serve populations with a large majority of students from CS-UR groups.

Co-founder, EAAI annual symposium on educational advances in AI, 2010-

Working with Mehran Sahami, Marie des Jardins, Yolanda Gil, Haym Hirsh, Todd Neller, and Kiri Wagstaff, I co-founded and co-organized the first years of EAAI, collocated with the longest-running artificial intelligence venue, AAAI. These events have featured posters, papers, and demos by students who participated in the HMC CS REU. Now led by younger researchers, the annual event continues to provide a forum for educators and educational innovations within the Artificial Intelligence community and our curricular offerings. I will offer a hand-on robotics workshop there in February 2016.

SIGCSE, ICRA, and EAAI workshop leader

Together with Mac Mason, Bill Smart, Sharon Gower Small, and Michael Ferguson, I organized and led two robot-themed SIGCSE workshops for CS educators. Each featured emerging robotics resources, e.g., ROS and the Neato, as well as support software and curriculum that enable other educators to bring them smoothly into classroom use. Bill Smart and I also offered an ICRA (robotics) workshop in 2015, and I have highlighted our curricular materials at an EAAI workshop in early 2016, along with Paul Ruvolo of Olin College, also a member of the senior personnel on the *CS for Insight* NSF project.

Collaborators and other affiliations

Collaborators and co-editors: (beyond undergraduate students) C. Lewis (HMC), M. Erlinger (HMC), E. Schofield (HMC), R. Libeskind-Hadas (HMC), E. Bush (HMC), C. Alvarado (UCSD), P. Ruvolo (Olin), T. Neller (Gettysburg),

Graduate advisors (3): G. D. Hager (JHU), D. Kriegman (UCSD), P. Belhumeur (Columbia)
As HMC is undergraduate-only, I have had no thesis students nor post-doc advisees.