Adam Carter

Clinical Assistant Professor
Human-Centered Environment for Learning and Programming (HELP) Lab
School of Electrical Engineering and Computer Science
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Research Interests

- Data Science / Analytics
- Social Networks
- Computer Science Education

Research Projects

OSBIDE **2011-Present**

Available at osbide.codeplex.com, OSBIDE is my PhD project. It incorporates social networking and data logging features into Microsoft Visual Studio. My research investigates the intersection between social and programming behaviors. To this end, I've developed statistical models relating social behavior, programming behavior, and their interactions to course outcomes (i.e. grades).

OSBLE **2009-Present**

Available at osble.codeplex.com, OSBLE is my PhD advisor's primary research interest. OSBLE is a content management system, similar to Blackboard, and is intended to support computer science education research. While the system is constantly evolving, we have used OSBLE in the past to explore the impact of studio based learning and group-based online discussion on computer science students.

ChemProV **2009-2012**

Available at chemprov.codeplex.com, ChemProV is a material balance tutor for chemical engineering students. In initial studies, we examined ChemProV's capability of teaching students how to solve material balance problems. In later studies, we investigated the role of online instruction in the chemical engineering curriculum.

Education

PhD, Computer Science, Washington State University **2007 - 2016**

Expected Graduation: May 2016
Thesis: Exploring the Effects of Social Programming Environments on Novice Programmers
Advisor: Christopher Hundhausen

BS With Honors, Computer Science, Central Washington University **2003-2007**

Concentration: Scientific Computing & Web Development
Advisor: Edward Gellenbeck

Teaching Experience

Web Development (CptS 483) — **2014 – 2016**
A survey of web topics. Includes server administration, mobile, and traditional application development in PHP, ASP.NET, HTML, and JavaScript

Software Design (CptS 323) — **Spring 2016**
Practical aspects of software design and implementation using object-oriented, aspect-oriented and procedural programming in Java and/or C#

Advanced Data Structures (CptS 223) — **2013 – 2016**
Advanced data structures, object oriented programming concepts, concurrency, and program design principles taught in C/C++ programming language.

Introduction to Algorithmic Problem Solving (CptS 111) — **Spring 2011, 2014 – 2016**
Introductory / outreach course in Python for students with no background in computer science. Future offerings will count as a university general education elective.

Data Structures (CptS 122) — **2013 – 2014**
Elementary data structures, recursion, sorting and searching, and basics of algorithm analysis taught in C/C++ programming language.

Program Design and Development (CptS 121) — **Summers 2012-2013**
Traditional CS1 course. Offered in C.

Computers and Society (CptS 401) — **Summer 2011**
General education elective that explores the role of technology in the world.

Work Experience

Clinical Assistant Professor — **2013 - Present**
School of EECS, Washington State University

Graduate Research Assistant — **2009 - 2013**
School of EECS, Washington State University
Lead developer on OSBIDE, OSBLE and ChemProV research projects
Directed the work of undergraduate interns

Web Developer — **2009**
TerraGraphics, Moscow, ID
Developed a web-based tool to assist in the collection and assessment of soil samples.

Graduate Teaching Assistant — **2007 - 2009**
School of EECS, Washington State University
Assistant for CS1 and CS2 courses as well as a graduate-level graphics course

Information Systems Specialist — **2005 – 2009**
Bethel School District, Spanaway, WA
Lead developer, Technician Service Request system
Lead developer, Bethel Online Special Education System
Developer, Instruction Management System
Developer, Bethel Schools Student and Teacher Web Portal

Systems Administrator — **2006 – 2007**
Don and Verna Duncan Center for Student Engagement, Central Washington University
Systems administrator and lead developer for department

University Service

ACM ICPC Coach – Washington State University **2013 - Present**

Judo Club Advisor – Washington State University **2014 - Present**

Senior Design Faculty Mentor – Washington State University **2015 - Present**

Publications

Journal Articles

Hundhausen, C. D., Agarwal, P., Zollars, R., & Carter, A. S. (2011). The design and experimental evaluation of a scaffolded software environment to improve engineering students' disciplinary problem-solving skills. *Journal of Engineering Education*, *100*(3).

Conference Papers

Carter, A. S., Hundhausen, C. D., & Adesope, O. (2015). The Normalized Programming State Model: Predicting Student Performance in Computing Courses Based on Programming Behavior. In *Proceedings of the Eleventh Annual Conference on International Computing Education Research*.

Carter, A. S., & Hundhausen, C. D. (2015). The Design of a Programming Environment to Support Greater Social Awareness and Participation in Early Computing Courses. *Journal of Computing Sciences in Colleges*.

Hundhausen, C. D., Carter, A. S., & Adesope, O. (2015). Supporting Programming Assignments with Activity Streams: An Empirical Study. In *Proceedings of the 46th ACM Technical Symposium on Computer Science Education*. New York: ACM.

Zollars, R. L., Hundhausen, C., Smith, D. W., & Carter, A. S. (2015). Assessing Studio-based Learning in a Material/Energy Balance Classes. In *2015 ASEE Annual Conference and Exposition*. Seattle, WA USA.

Hundhausen, C. D., & Carter, A. S. (2014). Facebook me about your code: An empirical study of the use of activity streams in early computing courses. *Journal of Computing Sciences in Colleges*.

Hundhausen, C., & Carter, A. (2014). Supporting Social Interactions and Awareness in Educational Programming Environments. In *Proceedings of the 5th Workshop on Evaluation and Usability of Programming Languages and Tools*. Portland, OR, USA: ACM.

Zollars, R., Hundhausen, C., & Carter, A. S. (2013). Use of studio-based learning in material/energy balance class. Presented at the 120th ASEE Annual Conference & Exposition, Atlanta, Georgia, USA.

Zollars, R., Carter, A. S., & Hundhausen, C. (2012). The impact of studio-based learning on the delivery of course information. In *ASEE Annual Conference*.

Carter, A. S., & Hundhausen, C. D. (2011). A review of studio-based learning in computer science. *J. Comput. Sci. Coll.*, *27*(1).

Carter, A. S., & Hundhausen, C. D. (2010). How is User Interface Prototyping Really Done in Practice? A Survey of User Interface Designers. Presented at the IEEE Symposium on Visual Languages and Human-Centric Computing 2010.

Doctoral Consortiums, Posters, and Talks

Carter, A. S. (2012). Supporting the virtual design studio through social programming environments. In *Proceedings of the Ninth Annual International Conference on International Computing Education Research*. Presented at the ICER 2012, Auckland, New Zealand: ACM.

Carter, A. S., & Hundhausen, C. D. (2010). Making memory transparent: design of a novice programming environment. In *Proceedings of the 2010 IEEE Symposium on Visual Languages and Human-Centric Computing*. IEEE Society.