

Department of Computer Science



357 EPS Building • Bozeman, MT 59717-3880
(406) 994-4780 • csinfo@cs.montana.edu
cs.montana.edu

What's New...



Issue #3

Fall 2014

From the Chair

It's a great time to learn about computer science and acquire computational thinking skills. Many people think of computer scientists as coders but the term computational thinkers is more accurate. Computer scientists love developing solutions to problems that can then be implemented on computers – that's what computational thinking is all about. Good computational thinkers have strong problem solving skills, a lot of creativity and enjoy learning. Once a solution is developed, it must be translated into a programming language such as Python, Ruby or Java – this is the coding part. Computational thinking is much more powerful than coding. Think about a book you enjoy. A book's storyline and ideas are what make it enjoyable (the computational thinking analogy), not the fact that it is written in English (the coding analogy). Did you know that smart phones exist that allow you to send smells to other people? In order to realize this exciting capability, computer scientists used their computational thinking skills to develop a new app. You can see one example of an oPhone (the o is for olfactory) at <http://www.onotes.com/>.

Happy Computing!

The Hour of Code is coming!

**Computer Science
Education Week**

December 8-14, 2014

<http://csedweek.org/>

What's Happening....

- Two teams from the CS Department competed in the ACM Regional Programming contest, November 8th, 2014, at the Colorado School of Mines. The MSU teams finished 3rd and 4th out of thirteen teams. Congratulations to our MSU team members!
- Fourteen students attended the 2014 Grace Hopper Celebration of Women in Computing Conference held in Phoenix, Arizona, October, 2014.
- Larry Hattery, a 1984 graduate of the Computer Science Department, was inducted into the College of Engineering's Academy of Distinguished Alumni for his contributions and leadership at TriplePoint Incorporated.
- Chris Nelson was named an Honorary Alumnus during Homecoming week for founding and building Zoot Enterprises.
- Thirteen CS students traveled to Germany, May-June, 2014, to participate in a 6-week study abroad program taught by Dr. John Paxton at Hochschule Ravensburg-Weingarten. Students from the host university joined the MSU students in a computational problem solving course offered by the MSU CS Department.

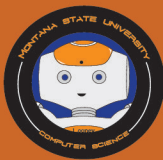
**Thank You
Industry Affiliates!**

ORACLE®

workiva

The CS Department would like to thank our industry affiliates for supporting the CS Department. Their affiliation and support is invaluable to our students and program.

Join the Fun!



For K-12 students
to test their
computing knowledge
and win
Looney prizes!

**Looney
Challenges**

Join at any time to
earn points to win
Looney Prizes,
including a
Raspberry Pi!

**PRIZES WILL
BE AWARDED,
JULY, 2015!**

For more information:
looneychallenge@cs.montana.edu
cs.montana.edu/looney-challenge

Demand Generation Initiatives Updates

The Demand Generation Initiatives continue to develop after a successful 2013-2014. This year, we are continuing to expand and develop programs to provide Montana K-12 students and schools with opportunities to increase their students' interest in computer science.

Robotics Outreach

Hunter Lloyd and his robots have given 31 assemblies to over 50 schools with 6600 students watching the "How to Train Your Robot" program since August, 2014. Schools Hunter visited include Circle, Glasgow, Nashua,



Hardin, Ashland, Roundup, Columbus, Great Falls, Fort Benton, Simms, Sun River, Fairfield, Missoula, Thompson Falls, St. Regis, Frenchtown, Livingston, and Big Timber.

Looney has two new friends, Ocean, an NAO Robot, and Bean. Hunter, Looney and his new friends will continue to visit schools during Spring semester.

Looney Challenges are back! Students from Kindergarten to 12th grade can learn more about computing by participating in Looney Challenges. The 2014-2015 Looney Challenges started September 14th, 2014 and will continue until June 30th, 2015. Students can do a challenge at any time until the end of June and earn points to win prizes. Twenty top point earners will win a Raspberry Pi! (www.raspberrypi.org).

The Joy and Beauty of Computing

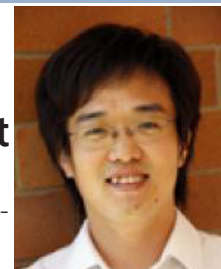
The Joy and Beauty of Computing course continues to be popular at Bozeman High School (BHS). This year, Kerri Cobb, BHS Business Teacher is teaching approximately 100 students.

The CS Department also continues to offer the course at the university level. The course provides a gentle introduction to computer science for students who may not have experience programming prior to their enrollment at MSU.

Computational Thinking Course for Teachers

The CS Department will teach, for the second year, *Computer Science in the Classroom: Computational Thinking for Teachers*. The course will be offered June 15-19, 2015 at Montana State University in Bozeman. The three credit course is intended for grade 7-12 teachers who want to learn how to incorporate computational ideas into the classroom. The course also provides teachers the option to potentially teach *The Joy and Beauty of Computing* as a dual enrollment course at their high school. Partial stipend support is available to qualified participants. For more information, please contact Sharlyn Izurieta, Demand Generation Coordinator, at 994-4794 or Sharlyn.Izurieta@coe.montana.edu.

Who's Who in the CS Department



Dr. Qing Yang, Right Now Technologies Assistant Professor, has been a faculty member in the CS Department since 2011. Originally from China, Dr. Yang obtained computer science degrees from Nankai University (B.S.) and Harbin Institute of Technology (M.S.). He moved to Alabama and obtained his Ph.D. from Auburn University in 2011 where he focused on networking.

Dr. Yang's current research includes Online Social Networks, Trust Management, Vehicular Ad-hoc Networks (VANETs), Wireless Sensor Networks (WSNs), Network Privacy and Security, and Mobile Ad-hoc Networks (MANETs). He is also collaborating with the Western Transportation Institute at Montana State University. Other projects include researching a remote, self-sustained system for monitoring water quality near highways, supported through a grant from the Federal Highway Administration, and software development for the NWP OTIIS Project, supported by the Montana Department of Transportation.

In addition to research, Dr. Yang also teaches wireless networks, mobile computing, a graduate course focusing on the Internet of Things (IoT), data structures and algorithms. He also enjoys conducting cutting-edge research, teaching, and interacting with motivated students in their research.

When asked about the future of computer science, Dr. Yang is most interested in the changes in computer science and how technology will transform the world and our daily lives. His advice to incoming freshman? Be prepared for hands-on activities and learning a lot of new concepts and information.

Outside MSU, Dr. Yang likes to spend time with his wife and two young daughters, playing poker, and downhill skiing.

Coming Soon! Software Factory - Montana

The Software Factory is a software development laboratory that has been designed and implemented in collaboration with The Department of Computer Science at The University of Helsinki and with initial support from Zoot Enterprises. Here, students use entrepreneurship, state-of-the-art



Software Factory
Montana



tools, modern processes and best practices to prototype and develop software for businesses in an environment made to support top-level research.

For information or to visit the factory, please contact Dr. Clemente Izurieta, clemente.izurieta@cs.montana.edu or 994-3720.

MSU Students Attend Grace Hopper Conference

The Grace Hopper Celebration of Women in Computing Conference is the world's largest gathering of women computer scientists and technologists. This year marked the 20th anniversary of the conference, October 8-10, 2014, in Phoenix, Arizona. The theme of the conference was "Everywhere, Everyone."

Fourteen students from MSU attended this year's conference compared to three last year. The students were able to attend due to several generous sponsors including Workiva, 3M, the Association for Women in Computing, and the Computer Science Department. Four students were awarded Grace Hopper Scholar-



ships. Additionally, the CS Department was a conference Bronze Level academic sponsor.

The Grace Hopper Conference is an amazing event with workshops and presentations. Over 8,000 women and 458 men traveled to Phoenix from 53 countries, 420 universities, and 305 leading technology companies.

What did I learn from the conference? Everything is possible if you work hard enough and stay focused on your goal. BELIEVE IN YOURSELF! Even though you may be one of the few women in the industry, we make a difference. Don't doubt your capabilities and keep taking action!

- Agata Grucza, CS Graduate Student

FIRST Tournaments 2015

FIRST Tech Challenge FIRST LEGO League Challenge

Friday Jan. 30, 2015 Saturday January 31, 2015



2015 Cascade Effect!

2015 World Class Learning Unleashed