

DEMONSTRATION SESSION

A Classroom Tested Accessible Multimedia Resource for Engaging Underrepresented Students in Computing: The University of Maryland Curriculum in a Box

Elissa Redmiles, *University of Maryland*
Mary Allison Abad, *University of Maryland*
Isabella Coronado, *University of Maryland*
Sean Kross, *University of Maryland*
Amelia Malone, *University of Maryland*
Contact: eredmiles@cs.umd.edu

In 2012, women earned 18% of computer science degrees; African American and Hispanic students made up less than 20% of computing degree holders that year. Research shows that relatable role models and engaging curriculum are required to engage underrepresented students in computing. There is a need for engaging and relatable curriculum to be delivered to students at the middle school level, when these students first begin to lose interest in computing. Thus, based on the results of a survey of current and former middle school computing teachers and a comprehensive literature review, we developed the University of Maryland Curriculum In A Box (CIAB). The CIAB includes profiles of relatable computing role models, accessible video and text curriculum and challenge projects for HTML/CSS. To simulate a “real world” programming environment, the CIAB guides students through programming within open source social media frameworks and Github. The CIAB also includes teacher enablement resources such as assessments and a week-by-week implementation guide. The CIAB was successfully implemented with a group of 6th and 7th grade students in Prince Georges (PG) County, a majority minority county in Maryland. Our demo will provide a walk-through of the CIAB assets, accessibility features and design process, as well as implementation advice informed by our CIAB implementation in PG County.

ACM Categories & Descriptors: K.3.2 [Computer and Information Science Education]: Computer Science Education

Keywords: Active learning; web-based; accessible; curriculum; middle school

DOI: <http://dx.doi.org/10.1145/2676723.2691870>

Using BlueJ to Code Java on the Raspberry Pi

Amjad Altadmri, *University of Kent*
Neil C. C. Brown, *University of Kent*
Michael Kölling, *University of Kent*
Contact: nccb@kent.ac.uk

The Raspberry Pi is an affordable and powerful (for its size) credit-card sized computer that has become very popular since its launch two years ago. It functions as a desktop machine but with easy access to peripheral hardware, such as buttons, sensors and LEDs, via its GPIO pins. Using a Java IDE like Eclipse or NetBeans is out of the question as the Pi is not powerful enough to run those. However, the beginners’ Java IDE BlueJ is ideal in this situation: lightweight enough to run on the Pi, but well-featured and designed for education. This demo will show how BlueJ’s features such as the object bench allow easy exploration and manipulation of the Pi’s GPIO pins, and how easy it can be to write some Java to interact with peripherals connected to the Pi. More information on BlueJ and the Raspberry Pi is available at <http://bluej.org/raspberrypi/>

ACM Categories & Descriptors: K.3.2 [Computers and Education]: Computer science education

Keywords: BlueJ; Raspberry Pi

DOI: <http://dx.doi.org/10.1145/2676723.2691872>

Permission to make digital or hard copies of part or all of this work for personal or classroom use is granted without fee provided that copies are not made or distributed for profit or commercial advantage, and that copies bear this notice and the full citation on the first page. Copyrights for third-party components of this work must be honored. For all other uses, contact the owner/author(s). Copyright is held by the author/owner(s).

SIGCSE '15, March 4–7, 2015, Kansas City, MO, USA.
ACM 978-1-4503-2966-8/15/03.