The ability to assess another person’s credibility is one of the foundations of human communication, yet humans are notoriously bad at detecting deception in everyday interactions. To date, most traditional trainings to teach people the correct deception cues have failed and may even cause reactance, which may make people perform worse at detecting deception than without training. In contrast, digital games can be effective for overcoming resistance to training and in changing people’s decision-making behaviors. Games incorporate both motivating designs and experiential learning environments for people to explore, observe, and reflect upon their behavior. Because people are generally unaware of how inaccurate certain cues can be, deception detection is one area where game-based training can be particularly beneficial in helping people overcome their reliance on incorrect cues, such as stereotypes or “gut” reactions that can be so misleading.

In VERITAS, a student/player takes the role of an interviewer in two distinctive video scenarios—a job interview and a police interrogation. In each scenario, the student/player chooses from a selection of questions and decides on the credibility of the answers to form final judgements to hire or not hire a job applicant, or whether a suspect is guilty or not guilty. Throughout the game there are numerous opportunities for training and evaluation of deception detection. We would like to Showcase VERITAS so that players can try their hand at detecting deception and see if the game will be effective for audiences they are familiar with. We can talk to people about the development of the game and how it came about as people visit our station at the showcase. We can bring up to 10 laptops for multiple players to try the game at a time.

Collaborators: Will Thompson, Ryan Ralston, Jaise Donovan, Emmett Mathews, and Braden Roper, University of Oklahoma K20 Center

DeBug-It! An Electronic Textiles Mat for Iterative Design
Debora Lui and Gayithri Jayathirtha, University of Pennsylvania

The growth of the Maker Movement in educational contexts has highlighted the possibilities of constructing personal projects for learning a wide range of content from circuitry to visual art. Less attention has been paid to the practices of deconstructing tangible projects for the purposes of teaching not only technical but creative skills in making. In this tech showcase, we present DeBug-It - a simple learning tool that we have developed allowing for youth to engage with practices of creative construction and deconstruction using soft, fabric-based circuits. Electronic textiles (e-textiles), or the use of sewable electronic components and microcontrollers, has recently been shown to be a unique context for creative and technological expression. Within our prior work, we have seen youth create a range of personal projects from interactive teddy bears to responsive ‘smart’ hoodies. However, the process of making these artifacts often involves tedious and time-consuming procedures such as doing and undoing stitches to debug their projects. Additionally, traditional instruction in electronics often involves ‘hard’ tools such as breadboards, wires, and resistors, which can sometime be alienating to certain students. DeBug-It addresses both of these issues in that it allows youth engage with circuitry using more ‘friendly’ materials such as cloth and thread, while also giving experienced e-textiles creators a new tool upon which to quickly iterate their design ideas. During the showcase, we will share the DeBug-It tool, illustrating how educators can use the components to introduce students to the practices of rapid prototyping using soft electronic components. We will present different kinds of DeBug-It challenges for participants to solve, and also share our experiences using DeBug-it with high school students in informal STEAM workshops.

Growing BioSENSORs with BioMakerLab
Orkan Telhan and Yasmin Kafai, University of Pennsylvania

BioMakerLab is a desktop biofabrication tool that streamlines the process of programming organisms with Synthetic Biology. We will use our platform to design, grow, and test a bioSENSOR that can be used to detect water pollution. Our activity will involve three sessions: 1) Brief introduction to the fundamentals of Synthetic Biology; 2) How to make a living sensor using microorganisms; and 3) Growing the bioSENSOR using BioMakerLab. The participants will have a chance to test their designs in a real world application and discuss the broader applications of bioSENSORS in K12 science education, citizen science, and low-cost diagnostics in developing countries. The activity will not require any background knowledge in Biology or BioMaking and intend to address both makers and life science educators. The session will also cover the fundamentals safe handling and disposal of genetically modified organisms.
Piper
Tommy Gibbons, Piper

Today's kids grow up with “black box” phones, computers and gadgets that come in beautiful packages, but leave no room for tinkering or understanding how they work. At Piper, we believe it is critical to understand how technology works in order to make sense of our environment and invent the future.

The Piper Computer Kit comes with everything you need to assemble your own computer. Inside, you will also find our revolutionary learning system that teaches kids engineering and programming through a combination of engaging storyline, physical building, and Raspberry Pi Edition of Minecraft.

The kit contains:
- Beautiful, handcrafted wooden computer case with HD LCD display
- Fully functioning computer running on a Raspberry Pi 3 Project Board. 1GB RAM. 1200 MHz Quad Core CPU
- Electronic gadgets including LED lights, buzzers, buttons, switches, sensors and more
- Cables to connect the screen, Pi and 6600 mAh powerbank together
- 8 square foot laminated blueprint explaining how to assemble your Piper Computer
- USB mouse with a retractable cable
- An 8GB SD card that holds your game progress and keeps your creations safe
- Custom Raspberry Pi Edition of Minecraft adventure that you experience by building and programming electronic modules
- Wifi enabled, new downloadable levels, and sharing capabilities
- Free automatic level updates
- It even comes with a Piper Screwdriver!

Piper is designed to grow as the child develops, while kids from 8 to 9 enjoy the assembly of the components and building in Raspberry Pi Edition of Minecraft, children from 9 to 13 love programming new gadgets and levels.

Mind Field
Leona Yang, Rony Kahana, Candice Li, Na-Yeon Kim, Md Tauseef, and Christopher Weidya, Andrew Carnegie Mellon University

Mind Field is a web-based interactive experience dealing with racism. It was designed to be a tool that raises awareness and evokes discussion among students on the inexplicit forms of racism. It was created in spring 2017 by the student team including Leona Yang, Rony Kahana, Candice Li, Na-Yeon Kim, Md Tauseef, Christopher Weidya, from Entertainment Technology Center, Carnegie Mellon University. Starting this August, it is officially part of the student orientation in Dietrich College of Humanities and Social Sciences, Carnegie Mellon University.

Word Knowledge e-Book (WKe-Book)
Stephanie Day and Elham Zargar, UC Irvine

Many children fail to comprehend what they read because they do not monitor their understanding. We developed the Word Knowledge e-Book (WKe-Book) to improve children’s calibration of their word knowledge. The WKe-Book, which is read on a tablet computer, is a choose-your-own adventure book where choices require choosing between two rare words (e.g., intrepid and vacillate). There are also embedded comprehension questions. We tested whether reading the WKe-Book would improve word knowledge, strategy use, and word knowledge calibration in a randomized controlled trial with twenty-five 3rd through 5th grade classrooms. Results revealed a significant effect on word knowledge, word knowledge calibration, and strategy use, which predicted student performance on standardized reading comprehension and vocabulary measures. These findings suggest that word knowledge calibration, strategy use, and word learning skills may support stronger vocabulary and reading for understanding, that they are malleable, and that the affordances of technology appear to support metacognitive learning, particularly when accompanied by teacher support.

Sweet Talk
Andrew O’rourke, Andrew Carnegie Mellon University

Team Sweet Talk from Carnegie Mellon University’s Entertainment Technology Center is exploring the use of voice interaction in virtual reality. Given VR’s currently limited interaction options, we explored what novel experiences we could create that would afford deeper character relationships as a result of this unconventional combination of interfaces. Using the natural language power behind both Amazon Echo and Google Home, we tested the limits of character-driven AI by exploring a variety of teaching/learning relationships between our guests and the AI.