

1125-C1-1449 **Sandy Irani** (irani@ics.uci.edu), Dept of ICS, Univ. of California, Irvine, CA 92697, **Frank Vahid*** (vahid@cs.ucr.edu), Dept. of CSE, Univ. of California, Riverside, CA 92521, and **Alex Edgcomb** (aedgcomb@cs.ucr.edu), Dept. of CSE, Univ. of California, Riverside, CA 92521. *New web-native animated interactive learning material for discrete math.*

An undergraduate course in discrete mathematics presents students with concepts that are often very different from the kind of math they have been exposed to in high school. Furthermore, in topics such as counting, there is no well-defined algorithm to solve problems. Instead students are given a set of mathematical tools and need to figure out by intuition and practice which tool to apply in a given situation. We have thus created new web-native interactive learning material for discrete mathematics, to replace existing textbooks. The material makes extensive use of interactive activities like animations and learning questions. Students are led through sample problems in which they have to reason about each concept to answer questions. Common misconceptions lead to incorrect solutions which are then explained. The animations help students understand visual and dynamic concepts such as bijections for counting or the execution of a finite state machine. At our university, the material has been used by several thousand students for the past three years. Instructors indicate positive results, and student ratings of the material is much higher than for the previous standard discrete math textbook. The material has been used at over 50 universities over the past two years. (Received September 16, 2016)