# The Snap! Programming Language

**Brian Harvey** *bh@cs.berkeley.edu*
Computer Science Division, University of California, Berkeley

## Abstract

*This workshop presents SNAP! (http://snap.berkeley.edu), a browser-based reimplementation of BYOB (Build Your Own Blocks). SNAP! is an advanced drag-and-drop programming language inspired by Scratch ([http://scratch.mit.edu](http://scratch.mit.edu)), aimed at teen and adult learners.*

*Besides greatly improved speed and reliability compared with the earlier BYOB, this version does not require software installation, and includes advanced features including first class continuations.*

*Participants will learn to use the language, with particular emphasis on features new since the 2010 BYOB workshop such as object oriented programming and first class costumes.*

### Keywords

## Workshop Objectives

This workshop is related primarily to Theme 3A (Constructionist Technologies) but also has connections to Themes 1A-C (teaching themes) because SNAP! is used in the "Beauty and Joy of Computing" curriculum and teacher preparation program.

Workshop participants will write short programs in SNAP!, starting with simple blocks and progressing through recursion, higher order functions, and object oriented programming. They will learn to be able to write programs in SNAP! and to teach using the language.

## Outline

- Building simple blocks (SQUARE)
- Blocks with inputs (SQUARE <size>)
- Reporters and predicates (EVEN?)
- Recursion (VEE, TREE, sentence generator)
- Higher order functions and lists (MAP, KEEP, COMBINE)
- Sprites as objects, inheritance (SINE, parallel TREE)
- Continuation (nonlocal exit, threads)
- Discussion of the use of SNAP! in the Beauty and Joy of Computing curriculum

## Keywords