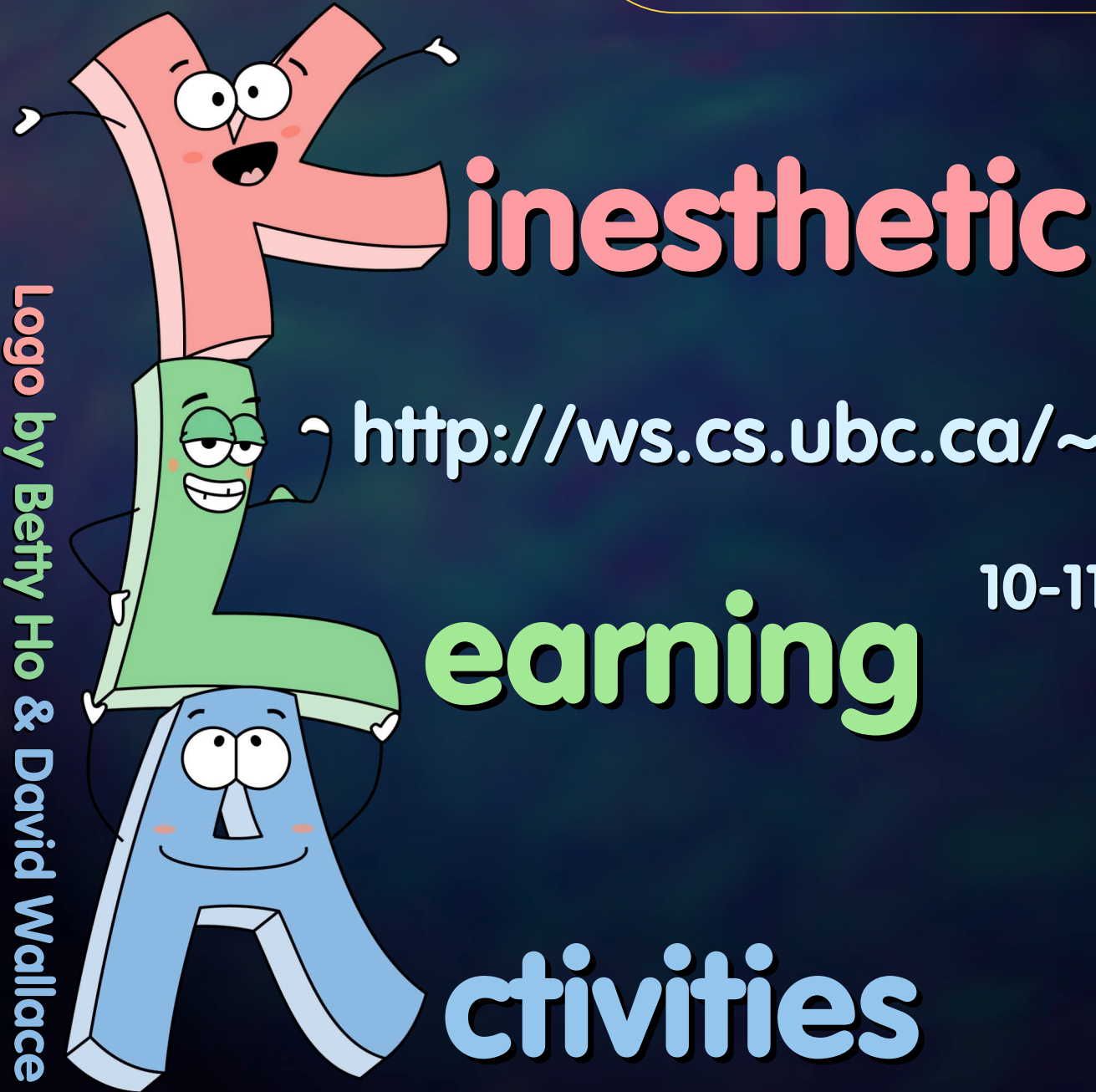


Andrew Begel, MSR

Microsoft  
**Research**



Logo by Betty Ho & David Wallace

kinesthetic

<http://ws.cs.ubc.ca/~kla/index.php>

learning

activities

10-11am, 2:45-3:45pm

2006-7-08

San Diego, CA

Breakout Sessions





# Kinesthetic Learning Activities?

Active learning exercises that physically engage students in the learning process



# KLA Warm-up: Hashing

What's a hash function? And...

What makes a good hash function?

- Line up under the number of your birth month
  - What do we do with October-December birthdays?
  - Why does this end up "clumpy"?
- Pick a *new* hash function and line up
  - What sort of patterns do we get?
- How should we pick hash functions?
  - What sort of patterns do we want to get/avoid?
  - How should we calculate the hash?



# KLA Warm-up: Hashing

- **How can you use this in your class?**
- **CS0 - hashing concept**
  - Motivate the idea of binning by properties
- **Algorithms - hashing practice**
  - Discuss how hashing functions work (or fail!)
- **Discrete mathematics - hashing theory**
  - Highlight key theoretical concepts
- **Icebreaker**
  - Mix students up
  - Learn about each other!
- **Reference**
  - Available on the KLA wiki
  - Designed by SIGCSE 2005 workshop participants



# Why KLAs?

- Combat physical disengagement
- Tap different learning styles
  - active, sensing, inductive
  - kinesthetic
  - sensorimotor learning
- Construct knowledge by analogy
- Makes learning fun!



# KLA limitations

- **KLAs are GREAT...**
  - To motivate students
  - To make concepts memorable
  - When there's a strong physical connection
- **KLAs are not so great when...**
  - Connections to lessons are missing
  - They would take too much time



# Session Structure

<u>Activity</u>	<u>Time</u>
<b>Hashing KLA</b>	10
Introduction	5
Designing KLAs	30
Summary	5

We're  
here





# Design a KLA for our topic

- Topic: Parameter passing & return values
- Brainstorm a set of learning goals
- Select one appropriate for KLAs
- Brainstorm possible elements
  - Props
  - Building blocks
- Design your own KLA (10 min)
- We'll take a 5-minute break
  - Reconvene with ideas for your own KLA!



# Please return to your seats

"What a fun learning activity that was!"





# Let's try one out!

- A team presents their KLA to all



# Wrap-up



- Things to keep in mind
- Web site
  - <http://ws.cs.ubc.ca/~kla/index.php>
  - All the KLAs you authored will be available there