

# Depth of Outreach Engagement

- Brief Encounters
  - e.g., contests, 1-day school visits, Code.org K5 PD
  - Many students/teachers, somewhat shallow
- Deep Mentoring
  - e.g., Science Fair Project Advising, Year-long PD
  - Many contact hours, few students/teachers

# Example Activities: Student-Facing



## Summer camps since 2004

- Dorm and commuter camps
- Students from 21 different states
- First day activities
- <http://outreach.cs.ua.edu/camps>



## Field trips and school visits

- “3-hour tour” to my department
- Visit to schools
- Awareness + Brief Activities



## Robotics Contest Quick Prep

- 1 hour weekly visits; 6 weeks
- 12 local schools with ugrad helpers
- <http://outreach.cs.ua.edu/robotics-contest/>

# Example Activities: Teacher-Facing

## Google CS4HS



- 2-3 day series of activities
- Content deliver similar for students
- Pedagogical Content Knowledge
- Community of Practice building

## Code.org K5



- 1-day activity
- Many first-time “coders”
- Unplugged activities
- Puzzle coding in Blockly
- Teacher/Learner/Observer lesson delivery

# Structure of a “Day”

- Initial awareness “talk” – 10 minutes
  - <http://tinyurl.com/WhyStudyCS>
- Some Programming Activity
  - Precision in Programming
    - Shoe tying activity
    - Fun with Peanut Butter and Jelly
    - Graph Paper Programming
  - <Your choice here>
- Unplugged Activity
  - Sorting network and Binary Search

# One-Day Teacher PD Activity

## Teacher / Learner / Observer

Role-playing during PD to model a lesson. After the modeled lesson, the Observer leads a discussion with everyone on the pedagogy of the lesson.



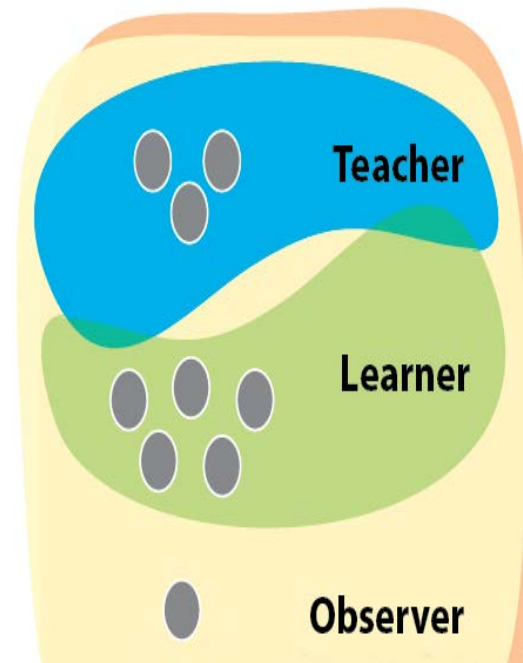
\* Teacher - This group teaches a lesson



\* Learner - This group pretends to be students



\* Observer - The facilitator observes the lesson and leads a discussion after the modeled lesson



In Partnership  
with Code.org®

# What it took to pull it off

- 1-day robotics contest
  - 25+ student and local volunteers
  - ~\$10,000; corporate sponsors + registration
- Summer Camps
  - 7 paid undergrad/grads; 3 dorm RAs
  - ~\$12,000/week; NSF, sponsors + camp fees
- 1-day visits and Code.org PD
  - Visits: solo effort, cost of pizza + travel
  - Code.org PD: solo effort, lunch + travel



# Robotics Contest







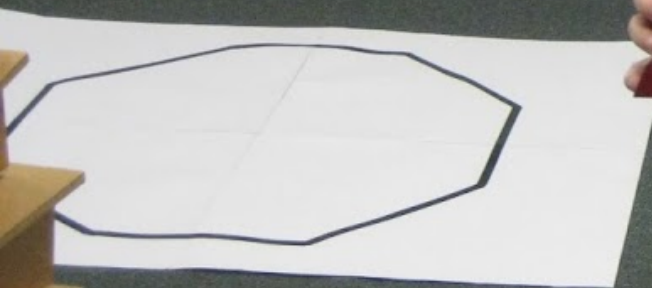




















"In cyberspace  
our creativity  
is limited  
only by our  
imagination."  
- Jeannette M. Wang







WELCOME  
CODE TRAINING  
PARTICIPANTS

watchfire

HARBROUGH ELEMENTARY SCHOOL







VERTICAL  
CLEARANCE  
14'-10"

EDMUND PETTUS BRIDGE

# Lessons Learned/Takeaways

- Start small and grow your outreach
  - Robotics 1-day contest
    - 2011 contest had 32 students with Jeff as keynoter
    - 2014 contest over 700 attendees and CIO of Mercedes-Benz as keynote
  - Camps
    - 2004 camp - 4 HS campers in 1 week
    - 2009 camp – over 150 MS/HS across 7 weeks
- Scalability challenges
  - Avoid burnout to keep your own “fire” burning
- Differentiated instruction/mixed abilities