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](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/](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
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
WELCOME
CODE TRAINING
PARTICIPANTS
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