

# Connecting to a Raspberry Pi From a Laptop

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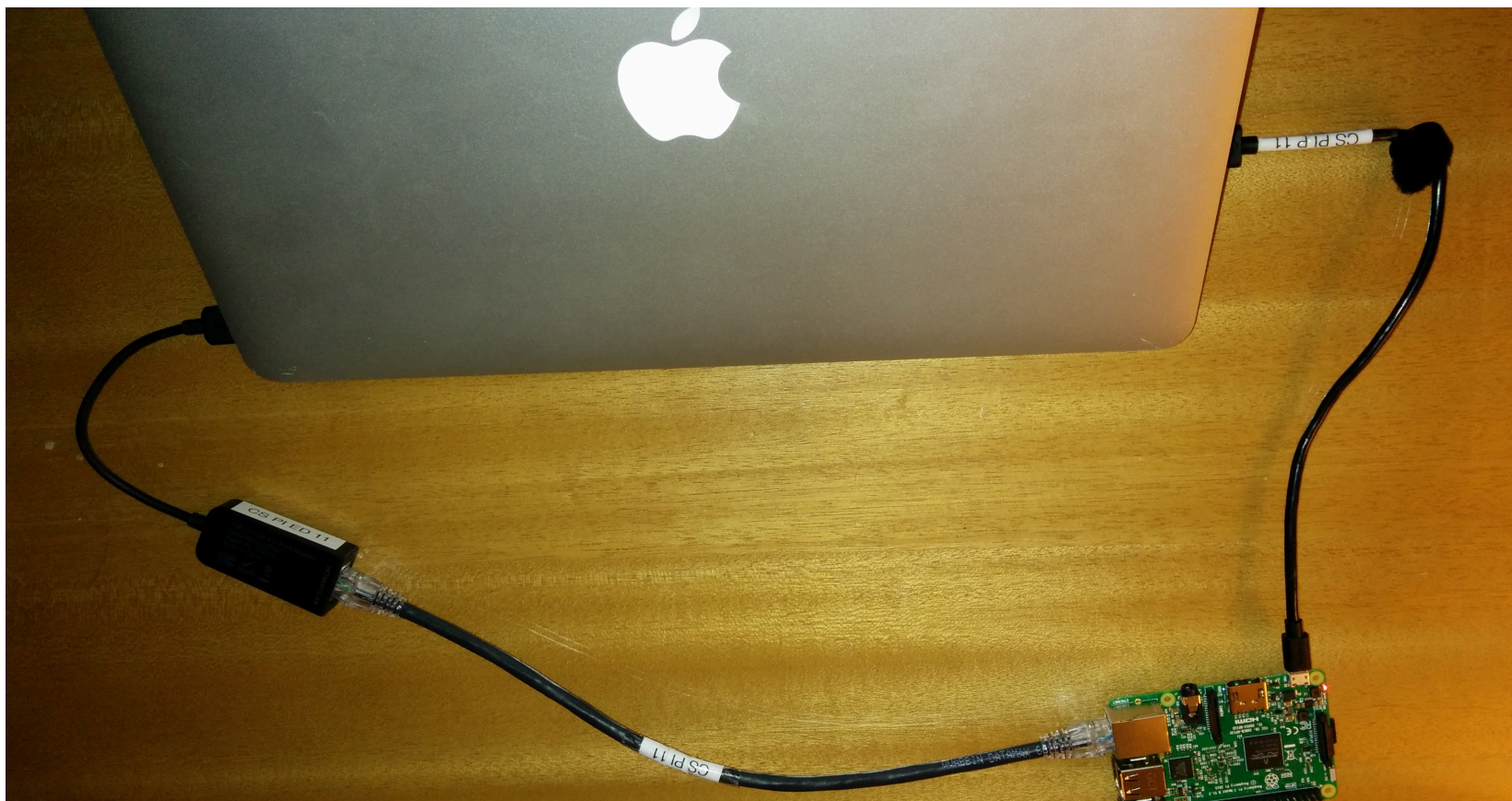
St. Olaf College

# Raspberry Pi Laptop Kit





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# Hands-on: Laptop connection to Pi

- Carry out the steps in the handout *Raspberry Pi Laptop Connection*
  - For Windows or Macintosh laptops
  - **Feel free to work with a neighbor!**
- Try recompiling and rerunning some exercises from Part 1 on the laptop-connected Pi system

# Laptop connection to Pi

- Student-developed **system image for connecting a laptop**, led by Jesus Caballero '18
  - DHCP server on pi image
  - Forthcoming: cluster of pis *sans* router (dongles)
- **Instructional videos** (team project for a course)
  - CS 300, *Parallel and Distributed Computing (PDC)*, Fall 2016
  - Margaret Zimmermann '18 and Jesus Caballero '18

# Videos

1. Videos for **downloading and installing Pi system image** on MicroSD
  - Three versions: Windows; Macintosh; monitor/keyboard/mouse
2. Videos for **connecting to Pi**
  - Two versions: Laptop connections (Windows, Macintosh); monitor/keyboard/mouse
  - **Summarized this workshop segment's handout**

# Classroom testing and assessment

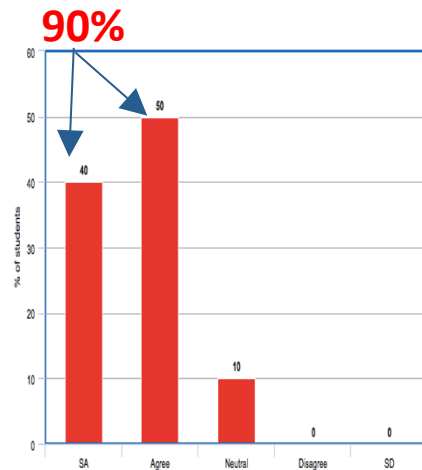
Margaret and Jesus led students in two classes to test their videos in late Fall 2016

1. **PDC student homework** for to download/  
install Pi system images on MicroSD
2. **In-class exercises:** Connect laptop and try  
some parallel computing
  - PDC course
  - **CS 241, *Hardware Design (HD)***, prereq CS1

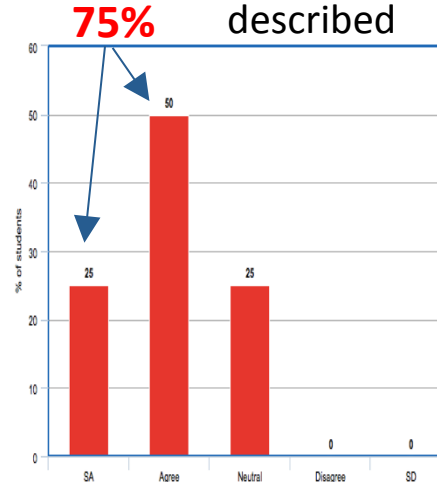


# Student Survey Results

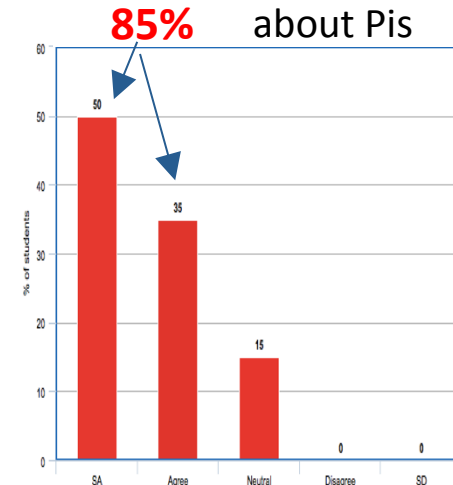
“I learn well using videos”



Confident about the tasks described



Want to learn more about Pis



Hands-on work with Raspberry Pis has been shown effective\*

- (About videos:) “Very easy to follow. Great visuals”
- “I definitely want to do more work with Raspberry Pis in future classes because it's fun to do some hands-on work.”

Jalal Kawash, Andrew Kuipers, Leonard Manzara, and Robert Collier. 2016. Undergraduate Assembly Language Instruction Sweetened with the Raspberry Pi. In Proceedings of the 47th ACM Technical Symposium on Computing Science Education (SIGCSE '16). ACM, New York, NY, USA, 498-503.



# Plans

“Laptop” Raspberry Pi image

- Modify image for non-router cluster
- Add more CSinParallel modules and PDC exercises
- Homework submission strategy

Videos:

- Linux, other platforms
- “Flip” HD, with weekly Pi exercises

# Acknowledgment

- **NSF** – CSinParallel grant
- Minnesota **CSAMP** program
  - undergraduate research opportunities for members of underrepresented groups
- St. Olaf College
- CS student cluster managers
  - Stephen Akers '17, Eric Oseid '17
- Anonymous alumni donor provided Pi kits