# ECPS 203
# Embedded Systems Modeling and Design
# Lecture 13

Rainer Dömer

doemer@uci.edu

Center for Embedded and Cyber-physical Systems
University of California, Irvine



1

## Lecture 13: Overview

- Assignment 7
  - Performance measurement on prototyping board
- SystemC: From the Ground Up (Part 4)
  - Bus modeling
  - Odds and ends



2

# Project Assignment 7

- Task: Performance measurement on prototyping board
  - Run C++ model of Canny Edge Detector on Raspberry Pi
  - Obtain absolute timing measurements of Canny functions
- Steps
  1. Prepare the prototyping board with fresh operating system
  2. Upload **`Canny.cpp`** from Assignment 4 and compile it
  3. Instrument the source code with real-time measurements
  4. Note the computation delays of the major Canny functions
- Deliverables
  - **`Canny.cpp`** (model instrumented with timing measurements)
  - **`Canny.txt`** (table of measured delays)
- Due
  - Wednesday, November 17, 2021, 6pm



3

# IEEE SystemC Language

- SystemC: From the Ground Up (Part 4)
  - **`DAC15_SystemC_Training.pdf`**, slides 57 through 78
    by David Black, Doulos
    - SystemC training day at Design Automation Conference 2015

  - *"The Definitive Guide to SystemC: The SystemC Language"*

  - Bus Modeling
    - Master and slave interfaces
    - Blocking versus non-blocking
  - Odds and Ends
    - Concurrent assignments to signals, resolved signals
    - Event methods
    - Command argument access
    - Error reporting



4