Computer Engineering: Graduate Student Orientation

Introduction

Prof. Charles Zukowski
(caz@columbia.edu)
Computer Engineering Program Committee Chair
August 31, 2017
Overview of Program

- Interdisciplinary program: joint between CS and EE
  - Covers *cross-cutting areas* in overlap between the 2 departments
  - Focus = “systems” ⇒ hardware/software (and networking)
- Popular area in many top schools:
  - Computer (systems) Engineering programs (Stanford, UCLA, USC)
  - ECE departments (CMU, UCSD, U. Wisconsin)
  - CSE departments (U. Washington, UCSD)
  - EECS departments (MIT, UC Berkeley, U. of Michigan)
- History at Columbia:
  - BS program: since 1994
  - MS program: since 2004
Overview of Program (cont.)

- Incoming Fall-17 MS class: **29 students**

- Computer Engineering Faculty Committee: **12 (as of 2017):**
  
  **CS (7):** Carloni, Edwards, Kim, Misra, Nowick, Rubenstein, Sethumadhavan
  
  **EE (5):** Jiang, Seok, Shepard, Zukowski, Zussman
Computer Engineering Faculty:

- Prof. Luca Carloni (CS) [luca@cs.columbia.edu]
- Prof. Stephen Edwards (CS) [sedwards@cs.columbia.edu]
- Prof. Xiaofan (Fred) Jiang (EE) [jiang@ee.columbia.edu]
- Prof. Martha Kim (CS) [martha@cs.columbia.edu]
- Prof. Vishal Misra (CS) [misra@cs.columbia.edu]
- Prof. Steven Nowick (CS) [+ EE] [nowick@cs.columbia.edu]
- Prof. Dan Rubenstein (CS) [danr@cs.columbia.edu]
- Prof. Mingoo Seok (EE) [mingoo@ee.columbia.edu]
- Prof. Simha Sethumadhavan (CS) [simha@cs.columbia.edu]
- Prof. Ken Shepard (EE) [shepard@ee.columbia.edu]
- Prof. Charles Zukowski (EE) [caz@columbia.edu]
- Prof. Gil Zussman (EE) [gil@ee.columbia.edu]

Contacts:
Administrative: Elsa Sanchez (elsa@ee.columbia.edu)
Faculty: Prof. Charles Zukowski, chair (caz@columbia.edu)
MS Project Opportunities

• Worked out individually with faculty
  • for credit: signing up for EE or CS project courses
  • for stipend: often over summers

• Typically requires student to:
  • demonstrate sufficient background and strengths
  • first take relevant 4000-/6000-level course(s)

(... and do well)
Computer Engineering Research

- Faculty strength across wide range of high-impact/cutting-edge areas
- 8 main research areas:
  - Digital/VLSI Design
  - Computer Architecture/Parallel Systems
  - Embedded Systems
  - System-on-Chip (SoC)/Network-on-Chip (NoC)
  - Asynchronous/Mixed-Timing Design
  - Computer-Aided Design (CAD)
  - Networking and Communications
  - Internet of Things

- For details see: http://compeng.columbia.edu/research-10