Computer Engineering:
Graduate Student Orientation
Introduction

Prof. Charles Zukowski
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Computer Engineering Program Committee Chair
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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
    • largest interdepartmental major within Engineering School
Overview of Program (cont.)

- Incoming Fall-18 MS class: 27 students

- Computer Engineering Faculty Committee: 12 (as of 2018):
  - 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]
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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