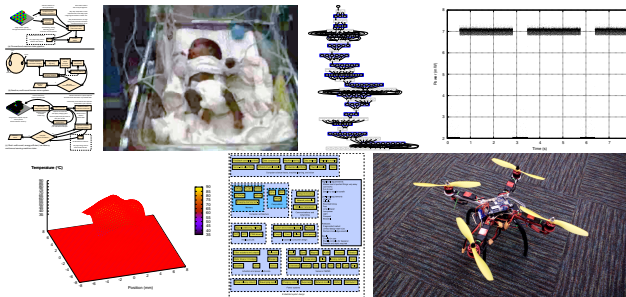# Introduction to Embedded Systems Research: Review of Topics

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Do you have a broad understanding of research topics and ideas connected to embedded system analysis, design, and implementation?

Review all the lecture notes.

Review video sections on topics you don't remember well.

Do you understand the main new ideas in the paper well enough to recall important details?

Read your summaries of all papers.

If uncertain, skim the summaries of two other students.

Use Piazza to discuss ambiguous concepts.

I will check Piazza frequently until the exam.

Topics I

Definition of embedded system.

Embedded system costs and constraints.

Example embedded system structure.

Embedded systems market.

Finding, reading, and summarizing research papers.

Writing for peer review.

Finding product-market fit.

Embedded system specification.

Problem definition, including costs and constraints.

Synthesis.

Topics II

Stochastic (and other) optimization methods.

Memory technologies.

Embedded memory hierarchies.

Vibration sensing and analysis.

Real-time systems.

Embedded operating systems.

Definition of Cyber-Physical Systems.

Power, temperature, and energy.

Power modeling for embedded systems.

Wireless network structures and communication technologies.

Papers

The website has a list of all assigned papers.