MEng Design Project Announcement – 2017-18 AY

Project title: Design of a General-Purpose Op-Amp in 180nm CMOS

Brief Description of Design Project Goals:

Overview: The Molnar group is building up a library of commonly used analog and mixed-signal circuits to be used as parts of future mixed-signal systems-on-chip. This project involves the design and layout of a high bandwidth operational amplifier in TSMC 180nm CMOS. Specifications for quantifying performance, layout guidelines used by our research group, and mentorship/oversight will be provided to assist with "real-world" design considerations.

Specific MEng Contribution: At the end of the project, you will provide us with a complete schematic, layout, and test bench and a specification sheet which meets industry standards for characterization and reporting gain, bandwidth, stability, rejection ratios, linearity, noise, and other relevant specifications. The goal is to experience integrated circuit design at an industrial (vs class project) scale. Depending on the difficulty, a suite of slight variations which trade-off different performance corners may also be included. All devices will be integrated into our standard cell library and will be available for group members to use for top-level simulation and testing of future research projects.

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Immediate Mentor: Robin Ying
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Number of MEng Students Needed: 1 - 2

Required Skills: Familiarity with Cadence simulation and layout as well as technical knowledge of ECE 4530 (or equivalent) are required.

Estimated Project Time Frame:

2017-18 Academic Year, Two (2) Semesters (may be started concurrently with ECE 4530)