University of Stuttgart
Institute of Electrical and Optical Communications

FA / MA

Circuits for Analog/Mixed-Signal AI Accelerators

Main Task Categories:
- Integrated Circuit Design
- Circuit Simulation and Verification

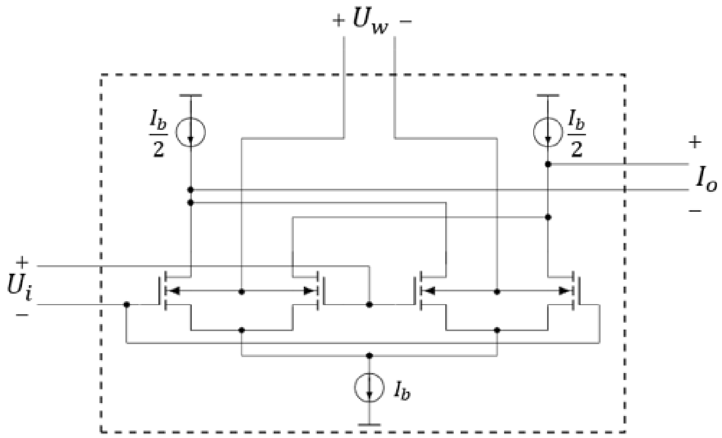
Your profile:
- Structured, solution-oriented working style, with strong ability to work independently.
- Very good understanding of core analog/mixed-signal circuit concepts.

We offer:
- Individual supervision and support in the IC design group at INT.
- Freedom to contribute and implement your own ideas.
- The opportunity to work with state-of-the-art CMOS technology (GF 22FDX).

Background:
Artificial Intelligence is expanding into many areas and has become a central component of modern technology. Contemporary AI workloads demand massive computational resources, and AI accelerators enable these tasks to be executed faster, with lower energy consumption and much higher efficiency than traditional CPUs or GPUs.
However, digital accelerators face fundamental limits in speed and energy efficiency as system complexity scales. Since many AI algorithms can tolerate reduced numerical precision, analog implementations offer an excellent alternative enabling higher processing speeds and improved energy efficiency, while remaining robust to small device-level variations.
At INT, we are developing energy-efficient analog circuits that will power the next generation of ASICs for signal equalization in high-speed optical transceiver links.

Your Task:
We are looking for motivated students interested in developing fast and energy-efficient analog computing circuits.

Possible Topics:
- Energy-efficient DAC and ADC design
- PVT-robust biasing circuits
- Voltage and current references
- Analog MAC circuits
- Input and Output buffers
- Low Power Level shifters



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