

بسم الله الرحمن الرحيم





شبكة المعلومات الجامعية التوثيق الالكتروني والميكروفيلم



جامعة عين شمس

التوثيق الإلكتروني والميكروفيلم

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لم ترد بالأصل





Cairo University

ACCURATE TECHNIQUE BASED ON GEOMETRIC PROGRAMMING FOR ANALOG CIRCUIT SIZING

By

Abdelrahman Sayed Fathy

A Thesis Submitted to the
Faculty of Engineering at Cairo University
in Partial Fulfillment of the
Requirements for the Degree of
MASTER OF SCIENCE
in
Electronics and Communication Engineering

FACULTY OF ENGINEERING, CAIRO UNIVERSITY
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Under the Supervision of

**Prof. Dr. Ahmed Nader
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Title of Thesis:

Accurate Technique Based On Geometric Programming For Analog Circuit Sizing

Key Words:

Analog Circuits, Design Optimization, Geometric Programming, Look-up Table, Data Fitting

Summary:

In this thesis, a new method for optimization of analog circuit is presented. It is based on the method of geometric programming for convex optimization. It uses a look-up table that holds the characteristics of MOS devices to speed up the optimization. A generic optimization system is implemented in C++ that utilizes the proposed method. The implemented system is described thoroughly. The method is proved to be very efficient as well as accurate in meeting the required circuit specifications. A novel method to optimize the circuit across PVT corners is also introduced. The results of a two-stage op-amp optimization are shown and appear to be superior to results of previous optimization methods.

Disclaimer

I hereby declare that this thesis is my own original work and that no part of it has been submitted for a degree qualification at any other university or institute.

I further declare that I have appropriately acknowledged all sources used and have cited them in the references section.

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