

# IEEE Circuits And Systems Society

## DISTINGUISHED LECTURE

in Seoul / Daejeon

### DL in Seoul

May 17 (Wed.), 2023 16:00 (KST)

J102 (building 22 in the map),  
Sogang University, Seoul, Korea



### DL in Daejeon

May 18 (Thu.), 2023 16:00 (KST)

Wooribyl Seminar Room #2201,  
E3-2 Building, KAIST, Daejeon, Korea



### Organized by

IEEE CASS Seoul Chapter  
IEEE CASS Daejeon Chapter  
IEEE CASS Taegu Chapter

### Sponsored by

IEEE, IEEE Circuits and Systems Society (CASS)

## Compact Control Loops for Switched -Inductor Power Supplies

**Gabriel A. Rincón-Mora**

Georgia Institute of Technology

### Abstract

Switched-inductor power supplies are pervasive in electronics. This is because they deliver a large fraction of the power they draw from the input source with an output voltage or current that is largely independent of the load. Keeping the output voltage or current steady this way is ultimately the responsibility of the feedback controller.

This talk uses insight and intuition to show how pulse-width-modulated (PWM), hysteretic, and timed loops switch the inductor and offset the current or voltage they control. The presentation then shows how summing comparators work and how they can contract, offset, and compensate (for reduced offset) these control loops. With this background and understanding in hand, designing compact feedback controllers for switched-inductor power supplies is more straightforward.

### Speaker's Biography

Gabriel A. Rincón-Mora is Motorola Solutions Foundation Professor, National Academy of Inventors Fellow, IEEE Fellow, and Institution of Engineering and Technology Fellow.

He has been with Georgia Tech since 2001 and with Texas Instruments before that in 1994–2003. He was inducted into Georgia Tech's Council of Outstanding Young Engineering Alumni, named one of "The 100 Most Influential Hispanics"

by Hispanic Business magazine, and included in "List of Notable Venezuelan Americans" in Science. He received the National Hispanic in Technology Award, Charles E. Perry Visionary Award, Three-Year Patent Award, Orgullo Hispano Award, Hispanic Heritage Award, a State of California Commendation Certificate, and an IEEE Service Award.

His body of work includes 11 books, 8 handbooks, 4 book chapters, 43 patents, over 190 articles, 25 educational videos, over 26 commercial power-chip products released to production, and over 160 keynote addresses, distinguished lectures, and research seminars. URL: [rincon-mora.gatech.edu](http://rincon-mora.gatech.edu).

