Stanford

Thomas Lee

Professor of Electrical Engineering

Bio

BIO

Professor Lee's principal areas of professional interest include analog circuitry of all types, ranging from low-level DC instrumentation to high-speed RF communications systems. His present research focus is on CMOS RF integrated circuit design, and on extending operation into the terahertz realm.

ACADEMIC APPOINTMENTS

- Professor, Electrical Engineering

PROGRAM AFFILIATIONS

- Stanford SystemX Alliance

PROFESSIONAL EDUCATION

- ScD, MIT (1990)

LINKS

- http://smirc.stanford.edu/people.html: http://smirc.stanford.edu/people.html

Teaching

COURSES

2025-26

- Advanced Circuit Techniques: EE 308 (Spr)
- High-Frequency Circuit Design Laboratory: EE 251 (Win)
- Things about Stuff: EE 14N (Aut)

2024-25

- Advanced Circuit Techniques: EE 308 (Spr)
- High-Frequency Circuit Design Laboratory: EE 251 (Win)
- Things about Stuff: EE 14N (Aut)

2023-24

- Advanced Circuit Techniques: EE 308 (Spr)
- Circuits II: EE 101B (Spr)
- High-Frequency Circuit Design Laboratory: EE 251 (Win)

- Things about Stuff: EE 14N (Aut)

2022-23

- Advanced Circuit Techniques: EE 308 (Spr)
- An Intro to Making: What is EE: ENGR 40M (Aut)
- High-Frequency Circuit Design Laboratory: EE 251 (Win)
- Things about Stuff: EE 14N (Aut)

STANFORD ADVISEES

Doctoral Dissertation Reader (AC)

Clarissa Daniel, West Foster, Malachi Hornbuckle, Jeongkyu Kim, Calvin Lin, Yuya Nishio, Victor Turbiner, Yu-Neng Wang, Zhechi Ye

Postdoctoral Faculty Sponsor

Richelle Smith

Doctoral Dissertation Advisor (AC)

Zongru Li, Tejus Rao

Master's Program Advisor

Wenxiao Cai, Nicolas Coleman, Ankush Dhawan, Jack Givhan, Ivan Kuo, Micha Rand, Owen Ryan, Fengrui Zuo

Doctoral (Program)

George Alexopoulos, West Foster, Oliver Pranis, Tejus Rao

Publications

PUBLICATIONS

- **Input-Independent and Power-Efficient Time-Interleaved ADC Calibration Using Adaptive Kuramoto Synchronization** *ELECTRONICS*
  Lee, D., Smith, R. L., Lee, T. H.
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- **Equalization and Coding Techniques for Edge Modulation Signaling** *IEEE OPEN JOURNAL OF CIRCUITS AND SYSTEMS*
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- **Computing Max 3-Cut With CMOS Tripolar Oscillatory Cellular Neural Networks** *IEEE TRANSACTIONS ON CIRCUITS AND SYSTEMS II-EXPRESS BRIEFS*
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- **Inherent stochasticity, noise and limits of detection in continuous and time-gated fluorescence systems.** *PloS one*
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- **Quantum Computing Gate Emulation Using CMOS Oscillatory Cellular Neural Networks** *IEEE TRANSACTIONS ON CIRCUITS AND SYSTEMS II-EXPRESS BRIEFS*
  Smith, R. L., Lee, T. H.
  2024; 71 (10): 4541-4545
- **Differential Edge Modulation Signaling for Low-Energy, High-Speed Wireline Communication** *IEEE TRANSACTIONS ON CIRCUITS AND SYSTEMS I-REGULAR PAPERS*

Smith, R. L., Hossain, M., Werner, C. W., Kahn, J. M., Lee, T. H.
2023

- **Polychronous Oscillatory Cellular Neural Networks for Solving Graph Coloring Problems** *IEEE OPEN JOURNAL OF CIRCUITS AND SYSTEMS*
  Smith, R. L., Lee, T. H.
  2023; 4: 156-164
- **Analysis and Design of a Tetrahedral Oscillator** *IEEE TRANSACTIONS ON CIRCUITS AND SYSTEMS II-EXPRESS BRIEFS*
  Smith, R. L., Lee, T. H.
  2022; 69 (1): 75-79
- **Hybrid Analysis and Simulation Methodology for Noise in Active Mixers**
  Smith, R. L., Lee, T. H., IEEE
  IEEE.2022
- **Hybrid Frequency Domain Simulation Method to Speed-up Analysis of Injection Locked Oscillators**
  Smith, R. L., Lee, T. H., IEEE
  IEEE.2021: 722-726
- **Modeling of Injection Locking in Neurons for Neuromorphic and Biomedical Systems**
  Smith, R. L., Lee, T. H., IEEE
  IEEE.2021
- **An Electronically Steerable Millimeter-Wave Reflectarray for Wireless Power Delivery**
  Buckmaster, J., Lee, T. H., IEEE
  IEEE.2020
- **A Simple Linear Time-Variant Theory of Superregeneration**
  Raghunathan, A., Lee, T. H., IEEE
  IEEE.2020
- **An Electronically Steerable Millimeter-Wave Reflectarray for Wireless Power Delivery**
  Buckmaster, J., Lee, T. H., IEEE
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- **An Electronically Steerable Millimeter-Wave Reflectarray for Wireless Power Delivery**
  Buckmaster, J., Lee, T. H., IEEE
  IEEE.2020: 514-517
- **Evaluating the Microwave Performance of Epidermal Electronics with Equivalent Transmission Line Modeling**
  Chang, T., Fan, J. A., Lee, T. H., IEEE
  IEEE.2018
- **A 125 pJ/bit 5 mW 28 GHz Superregenerative Receiver with Automatic Gain Control and Energy Efficient Startup for Burst Mode IoE Applications**
  Raghunathan, A., Lee, T. H., IEEE
  IEEE.2018: 70–73
- **A Ka-Band Beamformer for Wireless Power Transfer to Body Area Networks**
  Saiz, N. D., Buckmaster, G., Lee, T. H., IEEE
  IEEE.2018: 10–12
- **A Ka-Band Beamformer for Wireless Power Transfer to Body Area Networks**
  Saiz, N. D., Buckmaster, G., Lee, T. H., IEEE
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- **Evaluating the Microwave Performance of Epidermal Electronics with Equivalent Transmission Line Modeling**
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- **A Phase-Interpolation and Quadrature-Generation Method Using Parametric Energy Transfer in CMOS** *IEEE TRANSACTIONS ON CIRCUITS AND SYSTEMS I-REGULAR PAPERS*
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- **Terahertz CMOS Integrated Circuits** *IEEE International Symposium on Radio-Frequency Integration Technology (RFIT) - Silicon Technology Heats up for THz*
  Lee, T. H.
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- **Terahertz Electronics: The Last Frontier**
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- **A 0.96mW, 5.3-6.75GHz, Phase-Interpolation and Quadrature-Generation Method using Parametric Energy Transfer in 65nm CMOS**
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- **Single Antenna GPS Spoof Detection that is Simple, Static, Instantaneous and Backwards Compatible for Aerial Applications**
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  Lee, T. H.
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- **Simultaneous Measurement of Nonlinearity and Electrochemical Impedance for Protein Sensing Using Two-Tone Excitation**
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- **A 10Gb/s Equalizer with Decision Feedback for High Speed Serial Links**
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  2007
- **The History of the Integrated Circuit: A Random Walk**
  Lee, T.
  2007
- **Engineering Perspectives on Alternative Energy**
  Lee, T.
  2007
- **From Oxymoron to Mainstream: The Evolution and Future of RF CMOS**
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