CV	
	Sheng-Shian Li
Title:	■ **Prof.** **Dr.** **Mr.** **Mrs.** **Ms.**
Country:	**Taiwan**
Affiliation:	National Tsing Hua University
Major Field:	RF MEMS, CMOS-MEMS, Resonant Transducers
Brief Resume and Biography	Dr. Sheng-Shian Li received the B.S. and M.S. degrees in mechanical engineering from National Taiwan University, Taipei, Taiwan, in 1996 and 1998, respectively, and the M.S. and Ph.D. degrees from the University of Michigan, Ann Arbor, MI, USA, in 2004 and 2007, respectively, both in electrical engineering and computer science. In 2007, he joined RF Micro Devices, Greensboro, NC, USA, where he was a Research and Development Senior Design Engineer for the development of MEMS resonators and filters. In 2008, he joined the Institute of NanoEngineering and MicroSystems (iNEMS), National Tsing Hua University, Hsinchu, Taiwan, where he is currently a Distinguished Professor. His research interests include microelectromechanical systems, integrated resonators and sensors, RF MEMS, CMOS-MEMS technology, front-end communication architectures, and integrated circuit design and technology. He served as the TPC/ETPC/ISC for the IEEE IFCS, IEEE Sensors Conference, Transducers Conference, IEEE MEMS Conference, and IEEE IEDM. He also serves as Associate Editors for IEEE JMEMS, IEEE Sensors Letters, and IEEE Sensors Journal. He will be the General Co-Chair for 2025 IEEE MEMS Conference.

Abstract	
Title	**Design and Development of Micromachined Ultrasound Transducers (CMUT) Based on CMOS**
Abstract	**I will deliver a presentation reporting our recent design and development of CMOS-MEMS based micromachined ultrasound transducers (i.e., CMUT on CMOS), including design, modeling, simulation, fabrication, testing, and potential applications. This talk begins with a fabrication platform using CMOS 0.18μm technology node and post-CMOS process with a special focus on realizing tiny gap and high electromechanical coupling resonant transducers to serve as a fundament building block for acoustic/ultrasound sensing and actuation. Through this platform, capacitive resonant transducers with multiple-gap configurations can be implemented on the same chip to meet various demands raised by applications; for example, CMUT transmitter (TX) favors large gap spacing to enhance its driving efficiency while receiver (RX) necessitates tiny gap for low bias operation and high sensitivity. In the second part, CMUT which is designed and fabricated using such a platform will be introduced with its performance characterization and evaluation through a series of static and dynamic measurements. In addition, an ultrasonic pulse-echo testing (Time of Flight, ToF) and directivity verification of the proposed CMUT array on CMOS will be experimentally explored in both liquid and solid media. A special emphasis on CMUT vertically integrated with its readout IC to minimize parasitics and optimize form factor will also be demonstrated.**