

Three Outstanding Merits of Meindl's Career: A Personal View

As Prof. Meindl's Ph.D. student (1978–1981) in the Stanford IC Lab, which he established as the world's top academic research center in ICs/semiconductors, I have always been so proud that he was my advisor, cultivating in me essential skills in research and leadership for my 40+ year career. He was a unique leader and educator in shaping our industry of microelectronics and micro-power biomedical devices for the benefit of humanity.

- 1) He is the only technical leader who has had the honor of delivering multiple plenary speeches at the IEEE International Solid-State Circuits Conference (ISSCC). Our industry enthusiastically looked forward to hearing his pioneering views on major subjects: where semiconductor technologies are going, how much ICs can be miniaturized, and how many functions can provide outperformance beyond what human beings can expect. He also received the highest number of Best Paper awards from the ISSCC.
- 2) In 1975, I received earlier training at National Taiwan University under Prof. Simon Sze and then traveled thousands of miles to Stanford to pursue my research with Prof. Meindl. Now, 45 years later, Taiwan has established itself as a major region for producing ICs. However, in 1978, Prof. Meindl showed me some pictures from the 1960s of him with the president of the Republic of China on his trip to Taiwan—not only to share his experiences of establishing the IC Division in the U.S. Army Electronics Lab but also to advise that ICs and microelectronics should be Taiwan's focus for growing a prosperous economy. He told me that was one of the reasons that he took me as his Ph.D. student, expecting that one day I may

be contributing to Taiwan, from where I came. Ever since, I have always been grateful and admired Prof. Meindl for his global perspective of selecting and educating his close Ph.D. students from not only the United States but other geographies to share his own findings and contributions with the world. His breadth of mind and spirit is truly admirable.

- 3) After graduating, I constantly received great advice from him; e.g., he gave me his way of shaping one's career: write down explicitly and crisply, with fewer than 50 words, what one expects to achieve in the next few years so as to lay a clear road map for the most worthwhile career development. In 2016, he contacted me in Taiwan and inspired me on how to make contributions to science, technology, engineering, and mathematics education. I recorded my views in an educational video for public broadcasting, and he praised me for making contributions toward that direction. He was a rare leader in our field who could easily have had goals that prioritized making money, but, instead, he dedicated his most valuable wisdom, resources, and entire professional life to education and was awarded an IEEE Medal of Honor.

Prof. Meindl was truly a remarkable and unforgettable figure in the civilization of human beings. I am very proud and honored to write this article to tell the world about such a giant as J.D.M. as well as his true partner, Mrs. Freddie Meindl!

—Nicky Lu

About the Author

Nicky Lu is an inventor of several key IC designs/technologies and serial founder of several companies, from start-ups to publicly listed ones. He has dedicated his career to worldwide IC design and the semiconductor industry.

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A Model of Leadership, Kindness, and Humility

Jim was my Ph.D. advisor at Stanford, so I had many opportunities to learn from him and also study him—not just bask in his obvious brilliance but understand how he thought. In one of Jim's lectures, I was chatting with a classmate seated next to me, when I abruptly paused the conversation and said, "Wait, Jim is going to ask me a question"—and then Jim asked me a question! My classmate was startled, but to me it was not at all surprising. I had spent so much time observing, admiring, and trying to emulate Jim that I had internalized how he thought and made mental associations. From the start, I could sense that having the opportunity to learn how Jim's mind worked was a rare gift.

Of course, there is no substitute for the real thing, so I continued to reach out to Jim for his perspective, especially during my days as a junior faculty member. Even after that, I just kept calling him, and he, graciously, kept taking my calls. I will deeply miss having the chance to seek his advice, talk through a thorny decision, or work through a challenging problem.

A while back, I learned an impressive statistic: 90 graduate students that Jim shepherded toward their Ph.D. degrees have found success in their chosen professions, from research to industry to administration. However, he set us on a path to something more important than just professional achievement. Jim modeled for us how to be leaders and show kindness and humility—not just how to *think*, but how to *be*. I am enormously and endlessly grateful that he taught me and so many others so well. He represented the gold standard of what a teacher and mentor can be, and it is no exaggeration to say that I benefit from his wisdom every single day.

—L. Rafael Reif

About the Author

L. Rafael Reif has served as the 17th president of the Massachusetts Institute of Technology (MIT) since July 2012, where he has championed basic research, pioneered the future of education, and led the redevelopment of MIT's neighboring innovation district. On the MIT faculty since 1980, he received his Ph.D. degree in electrical engineering from Stanford University.

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