



Stephen Goodnick



Stephen Goodnick is the IEEE-HKN Board of Governors President. He currently holds the position of Associate Vice President, Research at Arizona State University. Prior to this position, he was Interim Deputy Dean and Director of Nanotechnology for the Ira A. Fulton School of Engineering. He came to ASU in Fall 1996 as Department Chair from Oregon State University where he was a professor of electrical and computer engineering. He has also been a visiting scientist at the Solar Energy Research Institute and Sandia National Laboratories and a visiting faculty member at the Walter Schottky Institute, Munich, Germany; the University of Modena, Italy; the University of Notre Dame; and Osaka University, Japan. Dr. Goodnick served as President (2003-2004) of the Electrical and Computer Engineering Department Heads Association (ECEDHA), and as Program Chair of the Fourth IEEE Conference on Nanotechnology. He has published more His honors and distinctions include: Fellow, IEEE (2004), Alexander von Humboldt Research Fellow, Germany, 1986; College of Engineering Research Award, Oregon State University, 1996; Colorado State University College of Engineering Achievement in Academia Award, 1998; IEEE Phoenix Section Society Award for Outstanding Service, 2002.

Why did you choose to study the engineering field?

When I went in high school, we really had no idea what being an engineer meant, and what the career opportunities were. The situation today is only slightly better, students still study mathematics and the sciences, but have little exposure to the application to engineering design and problem solving. In high school, I liked physics and mathematics as well as music, and was considering entering one of these majors in college, but my parents strongly suggested I go into engineering as a practical career choice, and thankfully I listened to them.

What do you love about engineering?

What I really love about engineering is the opportunity it provides for working on technology and solving problems that have an impact in addressing real world problems. I feel very fortunate to have a career that allows me to work on interesting problems which at the same time may provide benefits to society as a whole.

What don't you like about engineering?

Engineering has traditionally been too narrow in terms of attracting a broad range of individuals to the profession representing society as a whole, which is partly historical, and partly perceptual. We have to do a better job of making engineering an attractive and inclusive profession in order to attract the necessary talent to our field.



Whom do you admire?

John Bardeen, Andy Grove, Steve Jobs

How has the engineering field changed since you started?

The most consequential change in engineering over my career has been the revolution in computing and communications. When I started graduate school, desktop computers were just beginning to appear and were incredibly crude by today's standards, and there was no internet or world wide web. These major transformations in technology have literally revolutionized engineering at all levels in terms of instantaneous access to information, computer aided design, how and when engineers work.

What direction do you think that the engineering field is headed in the next 10 years?

We have just experienced the largest growth in information technology in human history, which is now starting to permeate all fields of engineering. In particular, biomedicine and biosciences are rapidly advancing due to information technology and to advances in nanotechnology, and I expect to see major developments in genomics based diagnostics and therapeutics for treating some of the major diseases affecting humankind. In terms of information technology itself, we are rapidly reaching the limits of size scaling in terms of microprocessor based computing, even with advances in nanotechnology over the next decade. I expect that the focus will shift from increasing raw computing power to applying this power to increasingly parallel systems for information processing, ultimately mimicking --- with experts in those fields, and being able to form collaborative teams with people from diverse disciplines.



If you were not in the engineering field, what would you be doing?

I probably would have gone into one of the basic sciences like physics, although there is no linear career path. What I thought I would be doing when I started school and what I ended up doing are completely different, due to a number of opportunities that appeared unexpectedly at various stages of my career.

Finish this sentence: "If I had more time, I would..."

...study jazz piano, learn Japanese, study cosmology, and take an extended wilderness trek."

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