

Professor H Vincent POOR

Citation

Recently, a famous technology writer declared: “In future, everything will be wireless”. If so, we have Prof H Vincent Poor to thank for making this wireless world multiply accessible. We are now living in a world where communications and computing are converging, in which cyberspace has been ‘democratized’ and human creativity unleashed, a world in which we can communicate with ‘anyone, anytime, anywhere’. More than half the world’s population is now connected by mobile phones, with 8 billion text messages sent per day, and many third world countries being able to leapfrog the need for expensive and cumbersome land lines. As high data bandwidths become more ubiquitous, they will place more powerful capabilities in the hands of a great many people, making their lives better in countless ways, big and small. At the center of this world revolution is Prof Poor, whose pioneering contributions to multiple access communications made it possible for many users to share the same wireless channels effectively. Wireless communication, by its nature, is vulnerable to interference, potentially negating many of its benefits. Prof Poor’s enormous contributions are both in the theory and technology that mitigates interference in wireless communication through the development of advanced signal processing techniques. These techniques are part of the most important communication technologies in our recent and even emerging technologies. They affect nearly every sphere of human activity.

Prof Poor is therefore a man for our age. The breadth of his scientific contributions is reflected

in the length of his honors list. He is the Dean of the School of Engineering and Applied Science at Princeton University and the Michael Henry Strater University Professor of Electrical Engineering. He is a member of the US National Academy of Engineering and the US National Academy of Sciences, a Fellow of the American Academy of Arts and Sciences, and an International Fellow of the Royal Academy of Engineering of the United Kingdom, a Guggenheim Fellow and a Fellow of the IEEE. He is a past President of the IEEE Information Theory Society and past Editor-in-Chief of the *IEEE Transactions on Information Theory*. He has also been a visiting scholar at a number of universities and research institutions in the US and elsewhere, including Stanford, Harvard and Imperial College in London.

Prof Poor may be a man of science, but he sees himself proudly also as a passionate educator with a sense of mission. Of all the honors heaped on Prof Poor, he may be proudest of a handful of prestigious teaching awards: the National Science Foundation Director’s Award for the Distinguished Teaching Scholars, the IEEE Education Medal, the American Society for Engineering Education Terman Award, and the Princeton SEAS Distinguished Teacher Award. It is not unusual for a distinguished scientist to receive an education award, but uncommon indeed to win multiple awards. They seal his reputation as an outstanding educator.

Since becoming Dean of Engineering at Princeton in 2006, Prof Poor has seen the number of undergraduates enrolled in engineering increased

by 41%, and the amount of space committed to engineering gone up by 38%. He has made engineering education more accessible in more ways than one.

There is a famous course on 'Wireless Revolution' for both engineering and non-engineering students at Princeton, now widely copied by other universities. This course is an expression of Prof Poor's educational philosophy which addresses a special need in higher education today: better integration of engineering and the liberal arts. He sees all too clearly that the world's pressing problems in health, security and the environment all require science and technology for their solution. Engineering should therefore no longer be taught in isolation. To him, the essence of engineering is creativity and teamwork. Engineers must learn to also function as leaders in business and public service. Society also needs a workforce that is 'technically literate' and creatively competitive. It thus makes sense for engineering and humanities to meet. At Princeton, courses are created for teams of engineers and non-engineers to work together to find solutions to problems. He sees the teacher's job as bringing out the students' in-born creative qualities, giving them freedom to find their creativity, even if doing so leads to student stumbles or missteps. At the very least what emerges is the originality of their ideas.

To many students, Prof Poor is a nurturing father figure who is approachable to a fault. The graduates he mentored are now spread out across many institutions as prominent scholars and scientists. Today, we honor a rare outstanding scientist whose gift as an educator is equaled only by his genius in helping to create an increasingly wireless world in which unprecedented freedom and human creativity triumph.

Mr Council Chairman, on behalf of the Council of the Hong Kong University of Science and Technology, I have the high honor of presenting to you Prof H Vincent Poor, Dean of the School of Engineering and Applied Science at Princeton University, for the award of Doctor of Engineering *honoris causa*.