

From the Editor

Guanrong (Ron) Chen

Editor-in-Chief, IEEE Circuits and Systems Magazine



In a university, a professor is expected to play a dual role: as teacher and as researcher.

Why is this so? I used to take it for granted but, lately, have started to examine this more seriously.

Every university has an assembly of academic talents, with different kinds of professors at various ranks. The familiar name “professor” originated from Latin, referring to a person who professed to be an expert in a certain area of arts or sciences, which was then extended to many other subjects of studies, and later, to a teacher at the highest rank in the education system. Generally speaking, a professor is a qualified expert for conducting research at the frontiers of some specialized fields, which can advance and extend the boundaries of the existing reign of human knowledge. A professor is also a qualified teacher capable of disseminating knowledge by means of delivering lectures and seminars in some subject areas to educate and nurture students and, moreover, is a service provider offering pro bono society and community contributions.

A professor assumes teaching duties in a university, which seems beyond any dispute, as teaching by nature is a job paid for by the government and the students, and which ultimately is sourced by the taxpayers. It would be unfair to the parents, to say the least, if professors are not teaching their children well. In a university, professors are supposed to be responsible for several core educational missions such as establishing goals and designing curricula for students’ learning, implementing and cultivating intended learning programs, and assessing students’ learning outcomes and achievements. The majority of professors do enjoy teaching and often appreciate the reciprocal benefits of teaching to research, in the sense of promoting novel ideas, providing inspirations, generating valuable research problems, and so on.

A professor also takes on research responsibilities in a university, which has never brought serious disagreement to the table before. Notwithstanding the fact that research continuously motivates and enhances teaching by means of updating course curricula and enriching text contents, research has been the essential drive

for the development of science and technology throughout the modern human history. Performing research is supposed to be enjoyable and appreciative, because it converts the contributions of human intelligence back to the future evolution and advancement of humankind. Conducting research is supposed to be a pleasant working process and a fun task relying on one’s imagination and creativity that often lead to breakthrough inventions and discoveries; therefore, researchers should be free of political demands and financial pressures. Through basic research, professors are advancing science and technology, thereby contributing to societies and communities. These tasks are generally not being carried out elsewhere; therefore, the harmonic research environments and platforms already established in our universities must be well preserved and further improved. It is quite alarming though, as research is becoming more dependent on funding support while obtaining funding is becoming increasingly challenging today, basic research has gradually become an unpleasant burden for some if not many professors in universities. The foreseeable danger is that ultimately this may bias promising scientific research directions and academic programs and may also threaten the invaluable academic freedom and intellectual diversity in some way.

Because professors are expected to play a dual role as teacher and as researcher, universities need to provide by every measure a robust and well-funded teaching and research environment for their professors, and the government should strongly support this endeavor by all means. To achieve the goal, universities need to have bigger and better visions in both teaching and research for the next decade and even the coming century. Professor John L. Hennessy, President of Stanford University, has already noticed it: “Universities have a dual charge: to advance the boundaries of knowledge and to educate students. Through this dual role we have the potential to make contributions that can shape the future. The challenge of the next decade is to live up to that potential.” (*2020 Visions, Nature*, vol. 463, 7 January 2010, pp. 28–29.)

A handwritten signature in black ink, appearing to read "Guanrong Chen".