

Challenging the leaders and best -

An open letter to our students

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Let me first wish you a Happy and Successful New Year. I don't know most of you personally. I have been proud to work at the University of Michigan and to work with many of you, our students. I have taught many classes and I have advised undergraduate and graduate students in numerous research projects. I mostly have worked in Engineering - how to design spacecraft, or how to build space instruments. But, I also have a passion about how nature works the beauty of it, how it works, and I worry about how we affect it. Mostly, I get a kick out of teaching you, the leaders and best.

Before I offer my challenge, let me convey to seemingly unrelated observations. The first relates to the world, and our environment in the US and in the state of Michigan. It is obvious to me that we need "leaders and best" like we have not needed them in a long - long time. We need them here in Michigan, in the United States, and worldwide. The second observation relates to you, and your capacity to instill change.

Reflecting over last year we recognize that things are not going so well with many things that are important to our life. On a global scale, we are facing unprecedented changes. This is easy to observe locally - you don't need a PhD for that: I grew up in the mountains of Switzerland. I used to go hiking in the mountains with my friends, especially up to the glaciers of the Swiss alps. Our favorite walk was very easy to do in an afternoon - now, it takes an entire day. Glaciers have retreated enormously, affecting all resources of the Swiss mountain communities. Furthermore, mountains are undergoing massive changes. Slopes that used to be stable as long as people can remember are now crumbling into the valley, often destroying houses that have been there for centuries, and also taking lives. Similar changes happen all over the world. Our challenges are not about prediction of climate change; they are about how to handle its consequences today. These challenges are about technology, our understanding of nature, but also about economics, policy, and medicine - they affect pretty much everything we teach at the University of Michigan. Most people are not used to think this way - and this is precisely where the world needs leaders.

We also face severe health and socio-economic challenges within the US and abroad. Entire countries in Africa are decimated by AIDS. But, we do not have to go to Africa to learn about challenges. Go walk around Ann Arbor or Detroit, turn on the evening news. Again, the solutions of these problems require leaders.

We can also look more locally. The state of Michigan is not doing well. Many of our friends have directly been affected by that. My wife is a music teacher and we share the

belief of the importance of music and art for a balanced life. But, then she gets phone calls of families that can no longer afford to rent this cello because dad got laid off. In 2007 Toyota is expected to become the first company in decades to out-perform Ford and General Motors with regard to their sales. Due to the strong focus of the Michigan economy on the automotive industry this affects all of us. Michigan needs innovators, entrepreneurs, and leaders which can transform the current industry and begin new businesses.

It is obvious from my introduction that I have great hopes because of you, our leaders and best, to affect these problems. But, let me now share a concern that I have had over the years, as my second observation.

I have met many students that had all the potential and capacity to inflict change. They were sometimes even straight-A students. But, they never used their entire capacity. They almost behaved like a fighter jet driving around the city and standing in traffic. They were making progress – they were even faster than most of their colleagues, but they never took off. Most of their careers at the University of Michigan, and I am afraid even later, they are a shadow of what they can be. They live in their comfort zone and are hard to argue with: they are great students. But they have never worked beyond 10% of their mental capacity.

Every once in a while, by pressure, excitement, social responsibility or other external or internal challenges, they look around and they realize that they are sitting in a fighter jet. All of a sudden you hear the roar and you see them go – faster and faster – until they take off and fly well above their peers and often their professors. That is when a great student turns into a “leader and best”.

All of a sudden, they take big challenges personally. They think ahead, attack problems, they question, and they innovate. Every once in a while I live through a transition like that in a student. It's easy to tell when it happens: It's that spark that appears in their eye, the spark that people have if they do not just have dreams, they know that they can make them happen. These students have great careers. Some of them have started their own companies, some of them are nurses in worldwide rescue operations, they work on the latest space technology, they are fantastic journalists, or they discover entirely new aspects of nature or of the human condition.

Finally, here is the challenge to you: I challenge you to live up to being one of the “leaders and best”. I challenge you to step out of your comfort zone and identify an important problem that you will solve. It could be a problem from my list, but it may also be something very different, but it must have impact beyond your immediate circle. Build a team of equally minded people, or work alone - but go for it. I will award 2000\$ of my personal research account for the best of these teams and I will commit my time and effort to brain-storm. I promise you one thing: Once you take off and look at the world from above there is no stopping you...