

UW EE 2009 Commencement Address

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It is a privilege and a great honor for me to be here with you this evening to recognize the accomplishments of the 2009 Electrical Engineering graduates.

As a long distance runner I am proud of my slow heart beat and low blood pressure. However, I'll have to admit that when Department Chair Leung Tsang asked me to give this commencement address, my biometrics went through the ceiling.

I am driven to be successful in both my work and my recreation. When approaching the task of giving this commencement address I actually Googled the subject of giving a good speech. I learned that the secret of a good speech is to have a good beginning and a good ending, then having the two as close together as possible. Excellent advice which I will endeavor to take from George Burns.

Thirty-three years ago, in 1976, I was sitting in your seats, graduating with an MS degree in Electrical Engineering. Based upon my experience, I can tell you that you are well prepared for successful careers.

Chances are extremely high that one of you graduates sitting here this evening will return to the UW, as I have 33 years later, to give the commencement address in 2042.

Just try to imagine the advances in technology between now and 2042. While it is impossible to predict where we will be in 33 years, there is one thing I know for certain. Electrical Engineers will have a role in every emerging technology.

Let me put this time frame in perspective by highlighting just a few of the technologies which have emerged over the past 33 years:

- Personal Computers
- Magnetic resonance imaging
- Cell phones
- The Internet and the WWW

In the case of supercomputers, the processing power has increased by over one billion times during my career, over nine orders of magnitude!

While writing this commencement address I had an ideal opportunity to learn about some of the current research in Electrical Engineering at the University of Washington. I was delighted to get a glimpse at some of the innovations students and faculty are working on right now.

In the next 33 years we're certain to see:

- Further development of synthetic biology in the modeling and building of genetic circuits
- Emerging technology of self-assembly
- Vastly improved mobile telecommunications that allow for real-time two-way video conversations

All of this emerging technology requires the excitement and passion of an entrepreneur.

All of you graduates are potential entrepreneurs. There are a lot of definitions for entrepreneur. The one that I like best is:

"Entrepreneur is a term applied to the type of personality who is willing to take upon herself or himself a new venture or enterprise and accepts full responsibility for the outcome."

Whatever you choose to do now upon graduation will be a new venture. And, in order to be successful at whatever you choose, you will need to take full responsibility for the outcome.

From my experience, I believe that the major components of having a successful and satisfying career as an engineer and entrepreneur are:

- Curiosity,
- Inventiveness,
- and Passion

Let's look at each of these:

Curiosity plays a vital role in the development of new technology. Being Curious is to ask questions: How, Where, What, When, Why?

Answering these questions gives understanding about how something works. And, sometimes curiosity also plays a role in understanding why things don't work.

You can encourage your curiosity by trying new things.

You graduates should be used to change, you've had classes which have changed every quarter, introducing you to new subjects, and new challenges.

While there is comfort to be found in familiarity, it will not encourage curiosity which is essential for an entrepreneur.

I urge you to look for change and then embrace it.

Let me give you the best excuse that you will ever have to buy new toys. I have found that new toys are a great way to encourage curiosity. This is a lesson I learned from my best friend and mentor, Gary Kildall, a fellow graduate of the UW and the author of the CP/M Operating System.

Gary always bought the newest toys, immediately when they hit the stores. I'll give you a couple of examples:

- You're probably too young to remember, but, Sony introduced the Discman portable CD player in 1984. Gary and I were deeply curious about CD technology and the potential to reliably store large amounts of digital data on a read only media. This toy spawned our second startup company, KnowledgeSet, where we developed and marketed the first commercially available encyclopedia on CD-ROM.

- In 1994 I led the memorial service for Gary. I had one prop that I brought with me when I gave that Eulogy. It was the first issue of Byte Magazine in September of 1975 which carried the headline, "COMPUTERS- the World's Greatest Toy!"

In 1975 personal computers were regarded merely as toys. Consider for a moment how important it was for us early pioneers to buy and experiment with that new toy.

So, my advice to you graduates is to buy new "toys." I will happily take some of the credit when a new generation of toys inspires your curiosity and your next invention.

This leads me to inventiveness.

The next step after your curiosity has led you to a problem is inventiveness; finding a solution.

I'll let you in on a secret:

The key to inventiveness is persistence!

Don't be afraid to make mistakes...lots of them. Those who are afraid of making mistakes seldom make anything else.

To be inventive you should be constantly measuring outcomes, adjusting, and improving. The important thing is what you learned at each step, that you progressed. It doesn't matter how many readjustments need to be made. These are not failures, simply improvements on the final product.

Gary Kildall, whom I mentioned a moment ago, is featured in a book called "They Made America" by Harold Evans. Evans was Editor of the London Times and President of Random House Publishing, and this is arguably the best book written about inventors in the United States. The chapter on Gary is entitled, "Gary Kildall, He saw the future and made it work. He was the true founder of the personal computer revolution and the father of PC software."

Not only does it tell the true story of how Gary founded the personal computer technology which we all rely upon today, but it also includes a chapter entitled, "Ten Lessons, What can be Learned from History's Innovators"

A few of my favorite lessons from famous inventors include:

- Make no assumptions
- Nothing works the first time
- New ideas disturb
- Success is risky

And finally, be passionate.

If there is any one single message which I would like to convey to you in my address this evening, it is to be passionate.

Be passionate about your work.

Trust me, as an entrepreneur, it will take a great deal of passion to see a problem all the way through to its solution. When choosing a problem to solve, choose a problem that you truly have a passion to solve!

Be passionate about your recreation.

Exercise! Get out of the office, away from the computer and the lab. Exercise has the combined benefits of good health and problem solving. If nothing else, take a lunch break and go for a walk. I guarantee that you will be more productive when you get back to work than had you chosen to work right through lunch.

Be passionate about your life.

If you don't have lots of passions in your life, go find them.

Make thoughtful choices regarding your lifestyle and career in order to keep your passions alive.

Do what you love, and love what you do.

You are now well prepared with your Electrical Engineering degree from the University of Washington for a successful career. The fact that you are prepared should give you confidence about your future.

My favorite quote about preparation is from Juma Ikangaa, a famous Tanzanian marathoner who said,

“The will to win means nothing without the will to prepare.”

You Electrical Engineering graduates of 2009 have demonstrated the will to prepare.

Now, do whatever it takes to get that first job, and turn your nervousness about the future into excitement!

You need only the curiosity, inventiveness and passion to make it a reality.

Thank you.