

# REMARKS FOR ADMINISTRATOR BOLDEN

## UNIVERSITY OF MICHIGAN, ANN ARBOR

### WINTER COMMENCEMENT

Dec. 14, 2014

Go Blue! To all of you in the University of Michigan Class of 2014, thank you for inviting me today. I want to thank President Schlissel and especially the parents and families of the graduates for the opportunity to share this special moment with you.

As I travel the world, it's one of the greatest pleasures of my job to meet young people like you who are going to lead this nation -- this planet -- into the coming decades.

Now, I'm not done yet with my own career. But I did come out of retirement to lead NASA when President Obama called, and I know my wife looks forward to me returning to a little slower pace.

Your generation is going to take the things that people of my generation started and make them your own. You're going to do things that we haven't even considered yet.

It's your generation that's going to land humans on Mars. That's an amazing thing to contemplate. The feet in the first boots on the Red Planet could be here in this room today.

Your generation also is going to take the data from the amazing fleet of Earth observation satellites flying overhead and help us solve the challenges we face from climate change. In fact, right now, principal investigator Chris Ruf here at Michigan is guiding the 2016 Earth science mission called the Cyclone Global Navigation Satellite System, or CYGNSS, that will study the inside of hurricanes with GPS.

Besides the amazing technological accomplishments I know you're going to make, you're also going to create the art and stories around our journeys farther in to the solar system.

Next year an American astronaut, Scott Kelly, and a Russian cosmonaut, Mikhail Komienko, will launch to the International Space Station (ISS) for a one year mission that will further help us learn to live and work in space for the long term.

So you're going to have to really use your imagination to come up with something new that is not already being done. So much of what I encounter every day at my job was pure science fiction when I was a child. Multiple spacecraft at Mars; a spacecraft on its way to Jupiter; telescopes peering across the boundaries of our solar system; American companies working on the capability to launch astronauts by 2017. Most of this is among accomplishments of the 21<sup>st</sup> Century.

You know, I'm a military man and an astronaut. But only one of those paths was on my radar when I was your age.

So even if it's not your dream to travel to the moon, like the Apollo 15 crew of Dave Scott, Jim Irwin and Al Worden did in 1971 -- all of whom attended this great institution -- or any of the many other astronauts who graduated from here, whatever you're going to be has begun its gestation during your time here at the University of Michigan. You're part of what came before, and you're part of what is not yet formed and you know all too well that "it's great to be a Michigan Wolverine!"

Right now Voyager I, a spacecraft launched in 1977, long before probably even the graduate students among you were born, has become the first manmade object to reach interstellar space. That means it has left the solar system. It is truly out in the great unknown.

I'm sure many of you have younger brothers and sisters, and if they're younger than age 14, they've never known a time in their lives – not one second – when there has not been continuous human habitation in space aboard the International Space Station.

A child born this year will never have known a time when commercial companies were not regularly carrying cargo to space.

Those of you before me today preparing to receive your degrees will now spread out across the world with your knowledge and your curiosity. You'll realize that what you learned here is only the beginning of your story. Like my systems engineers always tell me, there is just nothing that can take the place of what you learn on the job.

For them, this means developing and troubleshooting the complex systems that run spacecraft and propel them at thousands of miles per hour through space like the *Orion* spacecraft that made its first flight test 10 days ago to simulate a reentry from a lunar mission.

In case any of you were wondering, *Orion* is the spacecraft YOU'RE going to travel on to an asteroid and Mars.

I like to tell the students that I meet in my travels all around the world that they are the space generation because of the things I just mentioned -- that they – and many of you will be among them - will be developing those human missions to Mars, and it's a certainty they – and you – will expand on the human exploration of space.

But beyond that, you all are the space generation because of the expansive way you look at our world, our universe, and the possibilities they contain.

You routinely talk with colleagues half a world away, whether it's via Skype or social media. In fact, science has become the new language of diplomacy as people seeking knowledge transcend boundaries and they no longer need to travel to meet face to face.

In your lifetime, you can contemplate conclusively locating a world like Earth orbiting a star in another solar system.

You can and should believe that the manmade challenges facing us on a global scale can be overcome with even greater efforts at cooperation across international lines. Here at home, you must ensure that we provide peace and justice for all our citizens no matter their race, creed or national origin.

You live in a world where astronauts from many nations fly together in space every single day, and where we're preparing to extend the human presence farther into the solar system.

I like to tell people that what NASA does is important for inspiring the next generation, but really, I think you already have that spark and it's up to you now to fan it for those who are at this moment just children. It's now your time and your responsibility to pick up the mantle of leadership and mentorship for the generations that will follow you. Your graduation today means not only that you will now begin the work of a career, but also that you will be reaching back to those who follow you and giving back to your communities, whether they are communities of scientists or artists or just your neighbors.

I never dreamed of being an astronaut and flying in space and none of that would have occurred and I would not be standing before you today had it not been for the mentorship and encouragement of a kind and generous man, the late Dr. Ron McNair, who challenged me to not be afraid of challenging myself – to believe what my Mom and Dad had told me for as long as I can remember – that I could do anything I wanted to do.

But I would have to be willing to study hard and work hard to attain my goals – I would have to have faith in my ability and myself.

Many of you are blessed to have the same type of people in your lives and many of them are here with you today – your parents, guardians, family and friends – and I'd like to thank them on your behalf for sticking by you and encouraging you when times may have be pretty tough. I hope that you will decide to provide the same support for others in the months and years ahead. That's truly how the next giant leaps happen.

I know that Michigan prides itself on its diversity and its commitment to research. Those are the exact things that are enabling the global cooperation that is going to land humans on Mars in the 2030s and extend our scientific knowledge beyond what any one nation can accomplish.

NASA launched the Global Precipitation Measurement Mission with Japan earlier this year. Five other nations provided instruments for the *Curiosity* rover that we landed on Mars in August of 2012 – nations that may have never been able to say they landed anything on Mars had they not partnered with the U.S. Many nations will have instruments on the next rover we send to Mars in 2020. The first woman from Italy to fly in space is aboard the Space Station right now. There are countless more examples of how our world is more unified than divided.

Whatever field you will be entering through your studies here at the University of Michigan, my advice for you is quite simple. It's what my wife, Jackie, and I have always told our son and daughter: dream big dreams; do what you want to do; don't listen to anyone who tells you can't do something or you don't belong; do your job and do it very well; and don't let the opportunity to make a difference in your world pass you by.

The writer Zora Neale Hurston said, “No matter how far a person can go, the horizon is still way beyond you.”

There’s truly much to behold on the horizon, and all of you are at the leading edge of reaching for it, no matter what your field of expertise. In fact, a spacecraft named *New Horizons* that has been traveling for 9 years already on its way to Pluto next year just woke up a week ago. We’ve never seen that icy dwarf planet up close, but early next year we will.

As much as humanity has done, we will never BE done.

I can’t tell you with certainty how things will look in ten years, but I expect that many of you will help lead us to a better world. Not just more prosperous...but filled with more fairness, opportunity, freedom, creativity and love. It’s been said, “The best way to predict the future is to invent it.”

That is our mission and this is your moment.

Congratulations Class of 2014! **It’s a great day to be a Michigan Wolverine! Go Blue!**