

XPrize AMA: Hi I'm Mike Melvill, the world's first commercial (non-governmental) astronaut. Self-taught engineer, I took up piloting mid-life and went on to fly the first private spacecraft into space at 63. AMA!

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¹Affiliation not available

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What's involved in having the authorities allow you fly into space? I don't imagine they just let anyone do it for fun?

[mx_bro](#)

I did not fly high enough to interfere with low earth satellites our only goal was to fly above 62 miles (100 KM) the official edge of space. We simply told the FAA that is what we were planning to do, and we were fortunate indeed to be located inside military airspace the R2508 restricted airspace. This particular restricted area is off limits from the surface to 60,000 feet. We got permission from the base commander of Edwards Air Force Base to take off in the mother ship, Whiteknight with me hanging under its belly in SpaceShipOne, climb to around 50,000 feet, and then drop the SS1 off the two hooks. I started the rocket motor, and pulled the nose up until I was near vertical, the accelerated to Mach 3 and at 170,000 feet I shut down the rocket motor, and coasted up to 328,000 feet, 62 miles. I fell back down into R2508, and was never a factor for any airliners or other aircraft, because the controllers at Edwards made sure no one was in the way. I have no idea what it would take to obtain permission to fly up to 300 miles or more, where the space station and many satellites would become a factor.

Can you talk about switching careers mid-life?

I'm 31 years old, about to finish up my first technical degrees in community college, and much to my surprise I've been doing a couple of NASA-related programs and scholarships that I found out about through my school. I spent my 20's pretty much being a crusty punk and construction worker, so it has been an interesting change.

I'm not under the impression that I'm about to go work in the space industry or anything, but would love to hear your thoughts as they relate to the idea that just because you're out of your 20's doesn't mean you can't radically alter the course of your career(s).

[Nachie](#)

I started out in construction in England, a machinist in the US and then was very fortunate to be hired

by Burt Rutan which put me into the aviation world. Having had three changes I would encourage anyone to go after what you really enjoy. Money is the necessary evil but try to follow a path that suits you.

South African here. Did you ever think growing up in Durban that you'd reach space one day? Were you inspired from a young age to get into flying? And if so, what was there around you to help with that?

[StJude1](#)

Hello South Africa! I never suspected I would get to be an Astronaut, but I was interested in flying from a very young age. My uncle took me up in a Jenny biplane when I was 8 years old, and that was it. I only got my pilot's license when I was 29 years old, Money! But I enjoyed flying, couldn't really afford it so I built my own plane, this plane got me the job with Burt Rutan in 1978, and I worked for Burt for 32 years flying every plane he designed while I worked for him;. SS1 allowed me to receive my Astronaut wings!

What is your engineering background? How did you self teach?

[Skankinzombie22](#)

I worked in a machine shop for 12 years learning on the job from a friendly mechanical engineer. Later I built a home built plane called the VariViggen, designed by Burt Rutan, an aeronautical engineer. He asked me to come and work for him in 1978, which I did and he took me under his wing, and mentored me. I ended up building a number of his aircraft designs, using my machining and my welding skills, and learned all I know as I went along.

What was the scariest moment you've had when flying?

[swag_train](#)

Good question Swag_train! I have had several scary moments, including a few engine out forced landings, but the one that sticks in my mind was a flight test involving spins in a small two place aircraft designed by my Boss. I ended up in a flat spin starting at 14,000 feet, and I finally managed to recover at less than 1,000 feet after making 17 disorienting spinning turns. It was caught on video, so I was able to count the turns!

Hey Mike, I'm 22 with an aerospace engineering degree and a private pilot's license. I would love to do what you do, but I have no idea how to get there. Any advice? Thanks in advance

[SpaceWolf73](#)

Sad to say you just have to be lucky! I happened to buy a set of plans to build a homebuilt plane. The designer happened to be Burt Rutan! I had never heard of Burt. When It was flying My wife and I flew it to Mojave to show it to Burt, he flew it and hired both of us during lunch that day! We both worked for Burt for 29 years!

You have flown most of Burt Rutan's airplanes and many of their first flights. What is it like working for Burt?

[John_Rigell](#)

Hi John, yes I have flown most of the planes Burt designed, making the first ever, flights on 10 of them. None of them had been in a wind tunnel, but I trusted Burt and he insisted we did these tests in baby steps, taxi slowly, check that brakes, engine and steering work OK, then taxi faster, lifting the nose wheel, rocking the wings a little and making sure the flight controls work as designed. Each of these small steps are done with using all of the runway each time. When you are comfortable, do a normal takeoff, and climb within the glide cone of the airport. The first flight should be short, but I try to gather all the data called out on the test card on my knee. I watch engine temps and pressures like a hawk and abort if anything is amiss. Takes practice, but it has worked for me.

thank you for doing this AMA! do you have any advice for aspiring pilots or people who wish to work in this field? and where do you see this industry in 10-20 years?

[xkamekame](#)

Thanks for sending in questions! I think the private space business will grow exponentially once Richard Branson begins carrying paying customers to space. It is not easy to do, but he has the drive and mentality much like Burt Rutan, to get it done. Look for a small start-up like Virgin galactic, and lots of others who are out there. I was just super lucky, and it would be just pure luck to do it the way I did.

Im currently a pilot who dreams of being an astronaut. How did you make that maneuver? Also, is flying in space ANYTHING like flying an airplane? (I fly gulfstream 4s and sometimes at night at FL450 I imagine being on the ISS or something.)

[Kinac](#)

In our case it was just like flying an airplane. Because the three axis reaction control system was directly connected to the control stick and rudder pedals.

At what altitude can you start to see the curvature of the earth?

[Babysealclubber420](#)

You can begin to see the curvature above 50 to 60 thousand feet, but to really see it, and to see the thin blue line separating the earth from the black sky(even in the middle of the day) you have to be above 100,000 feet, and it is even more obvious at 300,000 feet.

What's your favourite aircraft, past or present? Mine is the SR-71 Blackbird

[5213](#)

F-18 Hornet, I got lucky and was offered a front seat ride before the SpaceShipOne flights

If you did it, more will follow. How do you picture the commercialization and exploration of space in the next decade or so?

[wyled](#)

Peter Diamandis really got this started by putting up the \$10 million XPRIZE. When Virgin Galactic are successful, I expect the commercialization of space to grow exponentially.

Hi Mike, I'm a 34 year old self-taught engineer working as a spacecraft Systems Engineer. Also a pilot and aircraft owner, adventurer. You are an inspiration, I dream of getting to space one day too. Would you recommend continuing as an engineer and moving towards the private space industry (as opposed to defense related) like SpaceX or Blue Origins, or pursuing higher level pilot certifications and transitioning towards an aviation based career? Or, do you know of anyone in the industry who could use someone like me :). Thanks, Blue Skies (or should I say Black Skies?).

[Aa5bDriver](#)

Perhaps you are more likely to succeed through the private sector, NASA is inundated with applications.

Mr. Melvill I watched you go up in the first run for the X prize, I could see that you were nervous, but do you have any real regrets not doing something up there like you did with the M&M's?

As a fellow mid life crisis pilot, I worship the ground you walk on.. Thanks for being my hero.

[SeafoodGumbo](#)

I have no regrets! I had my camera on this flight velcro'd to the cockpit floor and while I was weightless, I grabbed the camera and got a bunch of cool photos of the earth

What was the reason for SS1 revolving/spinning so fast during it's ascent?

[Robdotcom](#)

It departed from controlled flight as soon as the wing was not lifting any more. The reason being the high wing design, it should have been a low wing aircraft which SS2 is.

Besides SpaceShip One, what was your favorite aircraft to flight test for Mr. Rutan?

[ragingxtc](#)

Burt's Boomerang!

I'm a big believer in the private sector doing things as opposed to the public sector. How is a mission as a private astronaut different than that of a NASA astronaut? And do you think it is run better being driven by competition?

[amateurpenismode!](#)

Yes, competition always works! I received my astronaut wings for simply flying above 100 kilometers or 328,000 feet. NASA astronauts receive their wings for flying on orbit.

How exactly did you self teach yourself to become an engineer? Did you start have any background

in it before starting? I would like to teach my self engineering however I am not sure where to start.. I am a manufacturing technician operating a CNC lathe. I have a pretty good understanding of GD&T and many machining operations. How can I take this knowledge and apply it to teaching myself engineering?

[Mauiflash13](#)

I worked in a machine shop for 12 years learning on the job from a friendly mechanical engineer. Later I built a home built plane called the VariViggen, designed by Burt Rutan, an aeronautical engineer. He asked me to come and work for him in 1978, which I did and he took me under his wing, and mentored me. I ended up building a number of his aircraft designs, using my machining and my welding skills, and learned all I know as I went along.