HP took me on a zero-gravity flight to promote their space printer

The topic of the morning is vomit.

Who will vomit. Whether or not to take Dramamine to prevent vomit, and if so how much. Several people sport metallic patches behind their ears — another anti-motion sickness, and thus anti-vomit, intervention. I have a bottle of prescription antiemetics in my bag.

There is a breakfast buffet consisting mostly of carbs. Carbs are our friends, we're told. Protein is not our friend and neither is grease. Protein and grease are hard to digest. Protein and grease mean vomit.

We are sitting in a conference room in Palo Alto, at HP's headquarters, and we are going for a ride in zero gravity. Did you know that most people do not ever want to be free of gravity? I said yes immediately, of course.

If you want to impress an engineer, how do you do it? Microgravity is a pretty good start

HP is the reason you think of "inventing things in a garage" when you think about Silicon Valley, because that's where William Hewlett and David Packard founded HP. (Steve Jobs was of the opinion that a healthy HP was good for the entire Valley, a *Bloomberg* story notes, probably for this reason.) It is, perhaps, the quintessential startup, one that went on to produce calculators, printers, and supplies for data centers. It also helped create Silicon Valley's business culture: a casually dressed firm run by engineers. But the company started sputtering in the 1990s, under CEO Carly Fiorina, by selling an instruments division and buying Compaq. These moves tipped HP away from innovation. Her replacement, Mark Hurd,

focused on minting money rather than investing in new ideas. The startup had, it seemed, reached middle age. Hurd was eventually replaced by Meg Whitman.

In 2015, HP split: Hewlett Packard Enterprise would run data centers, with Whitman as the CEO. HP would keep the printers and PCs; Dion Weisler, who had previously led the printing and personal systems group, was named CEO. HPE was thought to be the sexier part of the split, but HP has done surprisingly well post-breakup. Last November, it posted its fifth straight quarter of rising sales. The company has cut costs and started selling new products, even of Samsung Electronics. But HP isn't the energetic startup it used to be — and it isn't exactly an arbiter of Silicon Valley culture anymore, either. That might be why it's so excited about the ISS printer.



Annette Friskopp, HP's head of specialty printing systems, in midair.
Photo: Al Powers / Zero Gravity Corporation

The thing about engineers is that most of them are obsessed with space. In a lot of cases, enthusiasm for space is what got them involved in engineering in the first place. Space is one of the hardest problems — if not *the* hardest problem — any engineer is likely to encounter. The reason is both simple and hard to design around: there's no gravity. And if you've lived on Earth all your life, it can be hard to imagine what it is to operate without gravity; a lot of things, including printers, rely on gravity to work. (Most printers spit out extra ink, which, in gravity, stays in the printer; in zero-g, it just floats away. Plus, printers here on Earth rely on gravity for loading paper.) Getting around the problem of gravity is an engineer's shot at sci-fi glory. I float this idea by Annette Friskopp, HP's head of specialty printing systems, and she tells me one of her printer engineers has, in

fact, built his own observatory, for space object-observing purposes. So if you want to impress an engineer, how do you do it? Microgravity is a pretty good start.

On this fine day, HP has gathered a handful of reporters as well as several of its own employees at its headquarters to promote — yes — a printer, the HP ENVY Zero-Gravity Printer, for use on the International Space Station. (This seemed more significant to the ISS than to HP, since the last time the ISS got a new type of printer was 17 years ago: an Epson 800 Inkjet.) At first, I misunderstood the invitation and thought I would be witnessing a zero-g test of the printer. But in fact, the printer had already gone on its own zero-g test flight without us. Footage of this test exists, but I can't embed it here because NASA has restrictions on promotional use of its logo and the NASA logo is, of course, on the printer, which will be delivered to the ISS on a SpaceX rocket in a few months.

Essentially, this is a company party plus a brand activation
Essentially, I am faced with a company party plus a brand activation. Fortunately, I am prepared to interact with the brand! And I have been given control of *The Verge*'s Instagram account, so there was definitely *content* on the table. Nothing says middle age like mandatory fun, but since I'm creeping toward middle age myself, I am willing to take fun anywhere I can find it.

In the interest of full disclosure: I have not owned a printer for at least eight years, perhaps longer. It's not clear to me, entirely, what needs to be printed on the space station, and though I ask a couple of people at the event, no one can quite tell me. Here's what I do learn: most printers have glass in them, but the new HP printer for the ISS had to have its glass removed because if the glass were to shatter, it'd be a hazard in zero-g. This printer needs to just work because it's much harder to do anything in zero-g and you can't be fiddling with an app to use it. One button press, please!

But what *are* the astronauts printing? I personally have a minimal number of things to print: the occasional concert ticket, forms I have to sign, return labels. My landlord had to print me a copy of my lease, but not even my tax forms come in the mail anymore. It's all online.

Anyhow, I am trying to be chill about printing and also about the antiemetics because I don't want to share. (I got them for a concussion and the nurse told me it was the best prescription to fill because they are also good for hangovers.) Everyone here is very nice and sincere in an engineering way, which makes sense.

Enrique Lores, president of HP's Printing and Imaging Solutions.
Photo: Al Powers / Zero Gravity Corporation

We're told to stay hydrated before the flight, and during the en masse trip to the women's room — where heels and work attire are swapped for leggings, sneakers, and jumpsuits — people begin openly speculating about how many bathroom breaks we'll be allotted throughout the day. When we return, be-jumpsuited, the presentations begin. "We didn't think it would be possible," Enrique Lores, president of HP's Printing and Imaging Solutions, says to the assembled group, of designing the ISS-ready printer. People clap wildly; HP has a clapping culture. The teams from HP that are going on the flight are introduced to more applause. Also introduced are three winners of the ideas contest — essentially, HP had a call for submissions for ideas, and the winners went on this flight. Two of them are named Michael. The third is Gunar. We clap for them, too.

We'll have a total of maybe eight minutes free from gravity's clutches
Then we get to the real meat of the thing. We'll be flying

offshore, in a military air space. The flight will take place between 35,000 and 19,000 feet, which are normal heights for flying. The plane, a modified 727 with overhauled hydraulics and a padded interior, will get going as fast as they can get it to go, somewhere around 350 knots. Then, we will begin the parabolas.

Zero-g flights work like this: the plane climbs very high. Then it bombs out of the sky and you fall. That's it! But then, to keep you from splattering because you did not actually leave Earth's gravitational pull, the plane pulls out of its descent, and you experience gravity rushing back — to a maximum of 1.8 Gs — as the plane starts another climb. The first parabola is Martian gravity. The second is lunar gravity. Then there is no gravity. The plane will climb and plummet about 15 times, for a total of maybe eight minutes free from gravity's clutches. This is long enough to be fun and not long enough for muscle atrophy, a well-known side effect of prolonged weightlessness.

We are asked if we have questions. "I assume this plane can take, structurally, what we're about to do," says Michael Ainscow, of HP Supplies. (He is a third Michael, not one of the two contest winners.) Yes, we are told, it can. And then it is time for a safety video. There are no restrooms on board the plane — women near me groan — but there are three zones for us to hang out in while in zero-g: gold, silver and, weirdly, blue. Each is a large box, demarcated with paint on the floor, and you're meant to stay in your group box to keep chaos to a minimum. "Move gently so as not to hit your head," the safety video tells us. No jumping, and no swimming, please!




Pinterest co-founder Evan Sharp, left, with Ash Jhaveri, SVP of business development for Facebook.

Photo: Al Powers / Zero Gravity Corporation

We are then divided into our groups. I am, perhaps obviously, blue. Gold is HP execs plus Pinterest co-founder Evan Sharp and Ash Jhaveri, the senior vice president of business development for Facebook, for some reason. Silver is the NASA printer team, plus winners of an ideas contest, along with local media. Blue is a few other members of the media; Mark Thompson, the venture capitalist and author, and several members of HP's PR team. This is fine, actually, as blue is situated between gold and silver, and provides me with a decent view of HP's execs in case anyone vomits.

The seats are all at the back of the airplane, and we obediently strap ourselves in. The front three-quarters or so of the main cabin are just… padded. Padded floors, walls, and ceiling. We sit in the chairs until we reach a cruising altitude, at which point we are asked to remove our shoes and don our group color-themed socks and go to the area associated with our group. There, we lie on the floor and wait.

Have you ever thought about your arms?
As we enter Martian gravity, our first parabola, I notice my arms drift up. Have you ever thought about your arms? They don't hang at your sides for any reason other than gravity. I fully appreciate this for the first time as gravity retreats and my arms begin floating in front of me. The gold section, I notice, resembles a bounce castle: jumping, flailing limbs, mild chaos. There is general giggling throughout the cabin. "Feet down, coming down," a flight attendant hollers, and we are all flat on our backs again while the plane begins its ascent.

Lunar gravity next. This is how civilians achieve Michael Jordan's air time. The bounce castle is rowdier. We come down and lie on our backs. It's time.



I was born for this, obviously.
Photo: Al Powers / Zero Gravity Corporation

My hands and feet leave the floor first; well, of course. What I think of as being my body plan is entirely dependent on gravity. Without it, my limbs bob up. The sensation is sort of like being in the Dead Sea, too buoyant to truly submerge yourself in the salty water. Except there's no water. I catch myself thrashing my feet – *no swimming!* I expect there to be something to kick against, but there isn't, the kicking is useless but my poor dumb mammalian brain only really understands this as swimming. Then the gravity returns. We pull 1.8 Gs on the way up, and it feels like an elephant is very gently stepping on my body with its enormous flat foot.

On another parabola, I pull my legs in toward my chest with a little too much force and find myself somersaulting toward the ceiling of the plane. On another, we are herded by our group captains into doing a cutesy Superman pose. In the gold section, the CEO and a man I presume to be another HP exec – I

can’t quite tell who – push up into handstands. Anneliese Olson, the global head of Home Printing Solutions, somersaults nearly into the blue section.

It is pandemonium in the cabin, especially when the candy is distributed

It is pandemonium in the cabin, especially when the candy is distributed. We are warned only to eat the candies we release ourselves; some other candies, which might have flown previously, may float up from whatever crevasse they landed in only to fool the unwary into eating them. On our final parabola, the water comes out. Our section leader tosses some up me and it floats toward me – too low to catch in my mouth – like a soap bubble. I reach out and touch it, and it divides into several smaller bubbles. When gravity finally returns, I’m damp.



I am, I am, I am Superman, and I can do anything.
Photo: Al Powers / Zero Gravity Corporation

After all the hubbub, the decisions about Dramamine, the generally *robust* conversation around puking, the barf bags — after all that buildup, no one has vomited. The flight attendant seems joyous about this, though I am disappointed. All this talk about barf in the first act and not one single puker! This is why people read fiction: real life has no plot.

Anyway, one gravity-defying, pukeless ride later, we're back at the airport. I stop by the pilot's cabin before exiting the plane. The door has bumper stickers on it, like "i [heart] airplane noise" and "I froze my nuts off in Alaska," with a squirrel next to the text. Gareth Kelly, the head engineer on the NASA project, asks if there's any measurable data from our flight. ("He's the data guy," another HP person explains immediately after he asks.) No; it turns out measurable data is for the research flights, not for joyrides, like the one we took. We were within two-hundredths of zero-g, with some variations because of airspeed, the pilot tells us. The flights are better with a headwind, apparently.

As I exit the aircraft I am made to participate in some kind of photo ceremony where my upside-down name badge on my flight suit is turned right-side-up. Some photos of the HP crew are taken, and the next time I look for HP CEO Dion Weisler, he's vanished. The rest of us are loaded back onto the bus and driven back to HP HQ, where little space-themed gift bags with HP Sprocket printers inside await us. I bolt down some food and leave.

Three days later, the professional photographer who went up with us sends us his shots. There are a few great photos of me, which I send to my parents. And suddenly it clicks: the point of the brand activation. Because what is the Sprocket printer for? Photos.

Suddenly it clicks: the point of the brand activation. What is the Sprocket printer for? Photos
Several days after sending my parents the photos, I email

them: did they print? No, my father tells me. Yes, my mother tells me, though she tried to print the entire photo and only got the part I am in. (She did not disclose what printer she used.)

Was I activated by the brand? Yes. Did I interact with the brand? Also yes. Did I have fun? Definitely. Did any of us print? I am activated and engaged, but not printing – though the photos generated by the brand activation guaranteed that my mother is. The brand activation worked!

In fact, I later discover, my mom has that in common with the astronauts aboard the ISS. Turns out, they have to print procedural and emergency information (return inventory trajectories, that kind of thing).

But what else do the astronauts like to print? Photographs from Earth.

https://www.theverge.com/2018/2/11/16996464/zero-gravity-flight-experience-hp-printer-brands