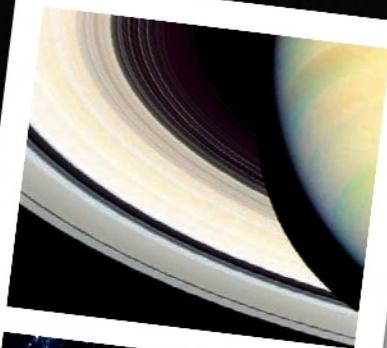


# STARRY

## -Eyed

That Xbox-wielding child of yours could design the next mission to Mars





Text...Christine Holm

**D**oes your child spend hours playing video games, launching impossibly complicated space adventures, or watching cartoons with space aliens battling feverishly for control of the universe? Behind these simulations, there may lurk a real fascination for space and stars, a latent longing for astronomy. We spoke with Marc Rayman, chief engineer for the Dawn Mission at NASA's Jet Propulsion Laboratory (it sounds like an operation from *Star Wars*, doesn't it?) about his interest in stars as a very young boy and how that grew into a lifelong love of—and fascination with—the universe.

**The NASA website mentions that you were interested in astronomy from a very young age. What sort of feelings do you remember having about stars when you were young?**

I loved going in our backyard late at night, setting up a reclining chair, and spending long hours gazing at the stars. Sometimes I was bundled in many layers of winter clothing with a hot drink, and other times I could wear a T-shirt and shorts and feel the warm, humid Ohio air on my skin. I remember feeling surrounded by the velvety blackness of the sky filled with sparkling gems, and sometimes I would feel almost dizzy as my mind would launch me into the depths of space, far from Earth, where there would be nothing to see but the sites of the cosmos! I would feel myself sail high above Earth, briefly looking down on it as it spun on its axis.

As a young boy, I was scared of witches. When I was about 4, as my parents and I were walking from the car to the house one evening, I remember seeing a meteor. I thought it was a witch streaking through the sky on her broom, and it really frightened me. But then when my parents told me it was "a shooting star," a rock from outer space burning up in our atmosphere, I was captivated. That is one of my earliest memories of being interested in astronomy. To this day, I love looking for meteors, and I still often think of how lucky I was to be transformed that one evening when a witch cast a magical spell on me, giving me a lifelong love of astronomy.

In addition to my *feelings* about stars, I loved *knowing* about them. I loved to read astronomy magazines and books. I read a little science fiction, but my much greater





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interest was in science fact, coming to know the stars not just as points of light at night but as enormous, hot, brilliant spheres fired by nuclear furnaces, with a wide variety of amazing characteristics, undergoing complex and fascinating processes.

### Did your parents encourage your interest in astronomy?

I don't think they encouraged me so much as supported me. That is, I couldn't get to an astronomy club meeting on my own, so they would either drop me off and pick me up, or one of them would attend with me. When I asked for specific books or subscriptions to astronomy and science magazines for birthdays, that's what they gave me. I wanted to own a telescope but couldn't afford a new one, so they helped

me put an ad in the newspaper to buy a used one and drove me around to look at the ones that people offered in response. My father let me use an old camera of his to take pictures of stars, the moon, and lunar eclipses. (That's another really fun activity that doesn't require a telescope.) And as much as I talked about astronomy, the stars, and space, they always listened and appreciated my enthusiasm.

### Is having a telescope absolutely necessary to enjoy stargazing?

Not at all! A telescope most assuredly can provide wonderful views, but as it gives you a deeper view of space, it also makes your

view narrower. To get the feeling of the vastness of space, you need to expand your vision, not contract it by looking through a long, narrow tube. The night sky is gorgeous without a telescope. Once you are adapted to the dark, and if you are away from city lights, your naked eye will reveal that the stars are not just white dots in the black sky. The stars come in different colors, from bluish to yellow to orange or red. The color usually is determined by the temperature of the star, and the brightness is a combination of how big and how far away the star is.

You don't have to be a scientist to revel in the joy of astronomy. All it takes is a little curiosity and some effort to learn combined with some careful thinking. Knowing a great deal of the math and science is extremely gratifying, but it isn't essential. Learning some of the basic concepts and connecting those concepts with the sights of the real thing is something every youngster can do, and it provides a joy that will last as long as the stars do. ✨



## from dreaming to doing

As a kid, Marc Rayman joined an astronomy club to learn more about the universe, but he dreamed of working for NASA. Today, he works at NASA's Jet Propulsion Laboratory (JPL), which is responsible for exploring the solar system as well as conducting missions to observe beyond our solar system. He is the chief engineer for the Dawn Mission, which is on its way to the asteroid belt—that vast collection of objects between Mars and Jupiter. As the chief engineer, he is involved in virtually every technical aspect of the mission. He says, "I love thinking about that spacecraft as it crosses millions and millions and millions of miles of interplanetary space, carrying with it my hopes and dreams and my longing to continue the journeys my mind

began as I looked up at the night sky in my backyard when I was a child."

Rayman likes sharing his interest in astronomy, science, and space exploration with others, so he writes a blog about Dawn at <http://dawn.jpl.nasa.gov/mission/journal.asp>. He also helped formulate a fun space website for children, The Space Place (<http://spaceplace.nasa.gov>).



### meet the author



**Christine Holm** has been writing for more than 20 years—a career she began imagining back when she was a little girl. She has a master's degree in English literature and is a published poet. She lives with her husband, two cats, and two dogs in Northern Minnesota.