

Josiah Schwab

evaluates self-driving cars

Software engineer, Waymo

BS, physics, MIT, 2009

PhD, physics, University of California, Berkeley, 2016

What was your research focus?

Astrophysics. I did computational work on stellar evolution and the mergers of white dwarf stars.

How did you make the switch into the private sector?

I had thought I would go into academia. But during my postdoc, my intent changed as I realized the constraints, such as not having much choice about where I'd live. My first step was talking to other people who had left academia. It was helpful hearing what people did and didn't like about their jobs. Some of the conversations crystallized for me that I wanted to try software engineering.

It can be tricky as a physicist with no job experience to put together a résumé that makes clear what your transferable skills are. I got much higher uptake when someone referred me for a position. I joined Waymo in 2021.

How do you spend your time?

I'm on a team that evaluates the performance of new software releases for Waymo's self-driving cars. We figure out how to process both real and simulated driving data to measure the rate of safety-relevant events like collisions.

What do you like about your job?

I get to scratch my problem-solving itch every day. I work 40 to 45 hours a week, less than when I was in academia. I also get paid more. And I have more mobility—there are lots of companies I could work at.

How does your physics background come into your work?

The quantitative and analytical aspects of working with data and reasoning about complex systems feel familiar from physics. In modeling collisions, I've used kinematics and rigid-body dynamics.



(Photo by Annelise Beck.)

What new skills did you need?

A lot of the growth for me was working in a different-paced environment. Projects are faster moving and smaller scope. And writing software with 1000 engineers requires different kinds of coordination than in the small collaborations I had experienced in academia.

Is there anything you'd like to add?

The transition is not easy. If I were doing it again, I would look outside academia earlier in my career. It's good to have awareness of options and what is required to pursue them. I'm happy I made the career change.