

I've spent an unreasonable amount of my life consumed by the efficiencies of transportation systems. In my first few years of elementary school, my favorite toy was a train set. I had a couple buckets of interlocking wooden train pieces, and a handful of battery-powered trains to fit them. I was obsessed with this train set. I took up the entire floor of my basement building elaborate train systems two, three, four stories tall: up onto the desk or the couch (the mountains), or into the closet under the stairs (the tunnel). I wanted to build the perfect train system and have the satisfaction of sitting back and absorbing my creation, looking at how smoothly everything worked, taking pride in the system's function and design.

Having outgrown that particular toy, I spend my rare free time in college playing a city-building video game called *Cities: Skylines*. It's effectively a glorified traffic simulator. I'll sit with a friend of mine who enjoys the game, as well, and we'll play simultaneously; while he's trying to grow his population, level up his citizens, and progress in the game, I spend two hours refining a single highway interchange. I refuse to make a city that doesn't have the perfect traffic patterns, no matter how painstaking the process.

I'm constantly wondering how technology might enable some aspects of ideal systems to be actually applicable to reality. I get more excited by every new step in the process: autonomous vehicles are only a few years away and city-wide traffic systems powered by artificial intelligence will begin seeing tests soon. I want to be a part of the development and proliferation of this huge shift in technology. I've been admitted to a self-driving car engineer certification program offered by the education startup Udacity. I'll be one of the first hundred people to be specifically qualified to be a self-driving car engineer, and I couldn't be more excited. I start my program in late November, a culmination of what I've been studying with my undergraduate degree all these years.

Over that time, I've found myself working on many projects involving transportation. I spent my junior year working on a remote-controlled airplane-building team, leading up to a trip to California to pit our plane against others built by teams at schools from around the world. I am the editor of the science and technology section for the school newspaper, and I write a weekly column on new developments in autonomous vehicle research. I spent a Saturday afternoon in August at a test drive of a Tesla Model X. I went purely for the chance to use the Autopilot functionality on the highway, just to experience for myself how the early stages of autonomous technology feel.

Along with that test drive, I met with a few local transportation engineers over the summer to learn about their jobs and talk with them about their views on the future of transportation. When I asked them what current innovations in transportation are most compelling to them, they pointed outside the US. One of them made the prediction that Singapore will be the first city to have a truly autonomous fleet of cars. The other mentioned how interested he is in Curitiba, Brazil, one of the world's most innovative cities for urban design and public transportation. I learned from them that to really understand this industry, international travel is necessary. The United States is very entrenched in car culture and too affluent to get creative with transportation solutions.

Traffic issues throughout the US have been acknowledged and are being addressed conservatively. Other countries, with different transportation problems and typically more noteworthy solutions, also deal with the weight of citizens' resistance to change, but are more fruitful in the push to implement controversial fixes. I'm intrigued by the fact that this difference is so striking and exists due to cultural and governing variations.

While I'll visit some developed countries to experience their infrastructure, I also have a curiosity about the people who live without the types of infrastructure that have enabled me to travel so easily throughout my life. There are so many people affected by a lack of transportation, which I simply don't understand from living in the United States. This thought started during a walk I took at home in Denver one spring night a few years ago. After a particularly long shift at work in early March, I found myself too late to catch the bus and had to begin walking home down Colfax Avenue, the long and seedy southern border of downtown Denver known for its pot shops and homeless population. My face was numb with cold, the usually busy street was quiet. I don't know why, but this particular night the need to keep walking — foregoing the next bus and continuing toward the west, to the mountains — stirred within the core of my being.

I spent my walk enjoying the silence of the city on a surprisingly chilly Tuesday night, but playing close attention to the few signs of the city still alive. At one point I noticed a homeless man sleeping on the steps of the Denver Cathedral and, later, the faint bass of house music bumping through the walls of a presumably nearly empty dance club. Noticing a handful of figures with their own reasons to be cold and outside on a quiet night made me think about all of the people in the city and beyond that lived completely different lives from me. This would be the closest I would ever get to interacting with any of them, and yet, it's still closer than I am to almost the entirety of the world's population. And the whole time I kept going back to those mountains. They were my beacon, guiding me back home on a dark night.

I had been walking for less than two hours when I got home. Where would I end up if I walked eight hours, or 24, or for a week or a month or until I hit the coast? Who would I meet, and how would they affect me? I developed this idea of a grand bike tour around the world, biking across countries and continents, attempting to understand to the best of my abilities cultures I was lucky enough to interact with. Some really fascinating people have told me about their lives because I ask bike tourists about their travel. Within a few weeks I had spent nearly all of my hard-earned busser tips on a bike fit for riding around the world. I used it to commute all summer and have taken it on long day trips in the Colorado mountains.

This night walking home down Colfax genuinely changed me. I felt an urge to explore more pronounced than ever before; I question whether I would have been interested in a trip like the Watson had I not had this realization. But it also just opened my eyes to the different ways people might get around, even right under my nose in my hometown. I became much more curious about those around the world who have a problem that I took as a luxury one night: walking home from work.

While I want to see how transportation affects people and creates opportunity, the fundamental reason for my Watson proposal is this fascination: I find traffic absolutely captivating. I am enthralled by the liquidity of a swarm of cars finding its way through a road too small for the volume, how all of the empty space is filled. While my real passion is traffic, and I'll spend a significant portion of my Watson watching the movement of cars, trains, and bikes, discovering the different perspectives of the world's peoples is truly important to me as an engineer. I hope to take part in the upcoming evolution of transportation, and that requires understanding humanity's role in transportation, which I hope to bring home from my Watson year.