NOIRLab Career Profile

Guillermo Damke
NSF's NOIRLab Assistant Scientist

> *It is not about how fast you learn because in the end, you learn."*

Guillermo Damke was inspired by the truly dark skies far from the city lights of his home in La Serena, Chile, and the wonder of countless stars and phenomena that accompanied these nights. Guillermo's father fueled his passion for space by bringing home pamphlets from work that featured alluring images of nebulae and spiral galaxies. His father worked for an astronomical association, a place that would also become part of Guillermo's future.

Today, Guillermo is a NOIRLab assistant scientist conducting user support for Blanco's Dark Energy Camera (DECam) at CTIO, where he is also in charge of site protection efforts to counteract light pollution. Part of Guillermo's initiative is to provide students with similar life-changing opportunities to his own experiences. As one of the leads of the La Serena School of Data Science, Guillermo inspires the next generation of scientists with the importance and future of 'Big Data' in astronomy. The school provides senior undergraduates and early graduate students with intensive hands-on experiences learning how big astronomical datasets are processed, accessed, and analyzed utilizing reduction pipelines, databases, and scientific programming.

How did you become interested in science?

I was naturally curious about the way things worked, from objects such as radios and car engines to the intricate details of machines and the complexities of the natural world. In primary school, I enjoyed studying the natural sciences, including biology, chemistry, and astronomy. My school was known for its prestigious physics teacher, Padre Juan Bautista Picetti, who became my mentor in high school and who inspired generations of astronomers with the observatory on the top of the renowned Seminario Conciliar in La Serena. I remember observing Jupiter and its moons through an 8-inch telescope in fourth grade and by the time I was in seventh grade, I was finally old enough to join the astronomy academy and looked forward to Friday night observations at the observatory.

During my final year of high school, I had the opportunity to lead planetarium presentations at the local schools. By engaging hundreds of people through outreach, I gained confidence in public speaking and learned the art of communicating complex ideas in an understandable manner.

Describe some of the opportunities that helped to shape your career path.

I attended the University of La Serena to pursue a bachelor's in physics with a minor in astronomy.

Fun Facts

I enjoy spending time with my family. We like to hike and recently tried inline skating.

I enjoy biking. I bike every day to work.

I play bass guitar.

I enjoy looking at the night sky. It brings me back to my roots.

During my final year at the university, I was selected to participate in CTIO's Prácticas de Investigación en Astronomía (PIA) program, an intensive 10-week summer program that provided a first-hand and collaborative experience of what life, research, and operations were like at a significant international observatory. This was a life-changing experience and was followed by the opportunity to be a research assistant at AURA, the same place my father worked. I also received a Fulbright Scholarship, which allowed me to continue astronomical research at the globally-ranked University of Virginia. For my PhD, I researched the spectroscopy of different Milky Way structures and tidal streams in the Sagittarius Dwarf Galaxy. In 2016, I earned my PhD and began work as a postdoctoral researcher for the commissioning of the APOGEE-South spectrograph, part of the Sloan Digital Sky Survey-III. In 2017 I was hired as an astronomer of data science for AURA and the University of La Serena.

What were some challenges that you faced?

One of the challenges I faced was becoming not just an astronomer but a Chilean astronomer. In the early 1990s, most astronomers were from the United States and had access to extensive scientific resources.

Knowing I wanted to be an astronomer, I explored all avenues to access materials, which were limited at the time in Chile. When I was in high school, I used my father's work connections to access the books within the Cerro Tololo International Observatory's library.

Another challenge to becoming an astronomer was learning English to effectively listen and communicate in science. In college, I needed to enroll in accelerated English courses for two years in parallel to my undergraduate courses in physics in order to become fluent.

What advice would you give students?

It is not about how fast you learn because in the end, you learn. When someone asks me how to become an astronomer I tell them it is not all about understanding physics, math, and computing. In order to be successful you need to be good at communicating, understanding what you read, and presenting this information in written and oral form. Most importantly, you also have to develop your soft skills. You need to be able to work with people at all leadership levels and contribute to a welcoming environment.

Guillermo Damke's Pathway to NOIRLab's Assistant Scientist