



US-ELTP Career Profile

Kyle Kinoshita

Thirty Meter Telescope Telescope Structures Group Leader



Be perseverant. Know what you want, try different things, experience, and experiment."

Kyle Kinoshita was born and raised in Hilo, Hawai'i, where his passion for surfing began and taught him to push his limits. As a young child, he enjoyed building model cars and airplanes, which eventually led to tinkering with bicycles, motorcycles, and cars. Kyle was gifted in math and science, leading to a natural pursuit of engineering as a future vocation.

During Kyle's first semester at the University of Hawai'i, he was spending too much time surfing and not enough time studying. He was placed on academic probation after his first semester and faced the reality of entering the workforce without college experience and education. Kyle realized that he had to apply the same level of discipline to his studies in college as he did to surfing, so he changed his work ethic and earned his bachelor of science in mechanical engineering. He was accepted into graduate school at Berkeley and Stanford, both located near the ocean, never dreaming that these world-class institutions would be in his future. Continuing his hard work, Kyle earned his master's in smart product design in mechanical engineering from Stanford University.

Kyle's first job out of college was building spy satellites for a company now known as Northrop Grumman in Redondo Beach, California. He was attracted to this position both for the ability to apply his engineering skills and for its oceanfront location that drew in local surfers. In this position, Kyle gained experience in test engineering, which led to an opportunity to be a project engineer for one of the Space Shuttle contractors. As the project engineer, he was in charge of the valves that controlled the flow of hydrogen and oxygen to the main engines and would lead a team to the launch pad at least once every two months to exchange the flow control valves before launch.

The stars continued to align for Kyle when he saw an ad for his dream job on the big island of Hawai'i. Missing home, he applied and became a senior mechanical engineer for Keck Observatory. There were opportunities for growth at the observatory, and eventually Kyle took on a new role to lead the design and construction of the Keck II telescope and enclosure. As new opportunities for Kyle evolved into even greater ones, so did his dreams. Today, Kyle is the telescope structures group leader for the Thirty Meter Telescope, a next-generation telescope that will revolutionize astronomy.

What were some challenges or opportunities you faced?

I came to a crossroads when I nearly failed college and it was either fight or flight. When I was on academic probation, I got a job at the plantation with my dad, waking up early and doing hard labor in difficult

Fun Facts



I was an avid surfer.



I enjoy mountain biking in southern California.



I am fourth-generation Japanese in Hawai'i.



I took up golf in Hawai'i, which teaches you about your character.

conditions. This helped me realize that if I applied myself, I would find work that would challenge and better suit me.

Another challenge I experienced was during the construction phase of the Keck II enclosure. A new construction manager was on the job who didn't have experience of how to prepare for snowstorms on Maunakea. There was a huge snowstorm that year and he did not stow the crane boom on the ground. Ice formed on the boom, and with wind speeds over 100 miles per hour, the crane fell over. It was the most sobering sight: a million-dollar crane looking like a noodle lying on the contour of the Pu'u on Maunakea. These are the moments that change you and make you tougher.

Describe your role as the telescope structures group leader for the Thirty Meter Telescope.

The telescope structure is the framework that supports all the instrumentation and optics for the Thirty Meter Telescope. It is the foundation that holds everything together. It's like a structure for a building that has super-precise tracking and pointing requirements with virtually

no vibration. We can't have things shaking because we're doing high-precision science. I'm responsible for the design and delivery of the telescope structure and all of its associated auxiliary equipment that makes up the subsystems. For example, a seismic isolation system protects the optics and instruments against large earthquakes. The telescope also includes a segment-handling system robot that Mitsubishi Electric has developed to safely, precisely, and efficiently exchange the primary mirror segments. There is also an elevator because the telescope structure is 15 stories high, and regular maintenance access is required up to the 7th floor.

What advice do you have for students?

Be perseverant. Know what you want, try different things, experience, and experiment. When you're young, don't be afraid to ask questions and you'll figure out what you like to do and that's the thing you should pursue. Part of the journey is also exploring different jobs. From the plantation job, I learned to work with and relate to many different types of people. I learned to appreciate people for what they do and who they are.

Kyle's Pathway to Telescope Structures Group Leader



Attended public school in Hawai'i



Built lots of model cars and airplanes



Tinkered with bicycles, motorcycles, and cars



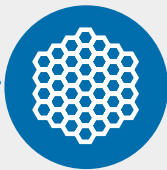
Received his degree in mechanical engineering at the University of Hawai'i



Went to Stanford University for smart product design



Now the Telescope Structures Group Leader for the Thirty Meter Telescope



Worked on the Keck II telescope and enclosure



Worked for the Space Shuttle program



Built spy satellites