Jose Losada  
IEEE Member  
AGE 42  
WHAT HE DOES  
Works on the software that runs the biggest telescope on Earth.  
FOR WHOM  
Gran Telescopio Canarias  
WHERE HE DOES IT  
Tenerife and La Palma, in Spain’s Canary Islands  
FUN FACTORS  
Works amid sunshine, surf, subtropical weather, and wild canaries.

was out on sick leave, by supervising 10 people. One or two of them rotate through the observatory on La Palma, but they all live on Tenerife, too.

“This is a good balance,” Losada says. “Live here, work there—when you need to install something, you go there to do it.”

What he installs is software. His is a laid-back, small-town world, with a tight circle of friends. At a café in Santa Cruz de Tenerife, the bustling little capital, he encounters several friends from past classes in tai chi and contemporary dance, his greatest passion.

“If I could live life over,” Losada sighs, “I’d be a dancer.” His troupe recently performed in the Auditorio, a swoopy bird of a building perched on the bay of Santa Cruz. Losada missed that one because he was traveling on telescope business.

We fly to La Palma and find the Gran Telescopio to be worthy of its name. It crouches like an idol in its silvery dome, atop an exhausted volcano, where the air is so dry that it chaps your lips in a few hours. The telescope's primary, light-collecting mirror, measuring 10.4 meters, is the largest in the world. In its particular sliver of spectrum, the infrared, the Gran peers farther away and thus further back in time than any other such telescope has done, surveying the birth of stars and the tug of black holes—the face of the universe when it was young.

Losada and his colleagues had to write millions of lines of code to manipulate the telescope and its supporting apparatus. First, there’s the primary mirror, made of 36 hexagonal glass segments, each one propped and prodded by actuators that keep its shape constant no matter how it’s positioned. It’s called active control, and it’s also applied to the secondary mirror, a plate of beryllium metal that redirects the beam to detectors at several focal points.

“The main thing is efficiency,” Losada explains. “You can manage complex observations in a short period and change the instrumentation depending on weather conditions. If the quality of the sky is not good enough, you can do a different observation quickly.”

We’re talking about writing software from scratch for a very particular project—a green field, not a tilted one. It’d be a dream job even without the surfg, the sun, and the mountains.

“Only now are we creating a maintenance group,” Losada says, “to work during the 50-year life of the telescope. We are trying to find ways to recycle some of the software we developed and trade it with other telescope projects.”

Original design, though, is what he relishes. To keep on automating the astronomy business, he’s hoping that his group gets to collaborate on the proposed European space telescope.

Right now, he and his colleagues are tying up loose ends. In July, they attended the telescope’s formal inauguration in the presence of the king and queen of Spain.

Even a crowned head must wear a hard hat inside the dome, but Losada asked me to take mine off before entering the shop where mirror segments are refurbished. It seems that a journalist once nearly hit his hard hat on one of them. It would have cost a million dollars to fix it, Losada says, with a look of mock horror. It turned to real horror as I pulled back, nearly colliding with another mirror. But he grabbed my hand, and the danger passed.

He is, after all, a master of active control.

—PHILIP E. ROSS
Ernst Völlm

Age 54

What he does

Designs the world’s most advanced dive computers.

For whom

Underwater Equipment Made in Switzerland (UEMIS)

Where he does it

Adliswil, Switzerland

Fun factors

Goes diving almost every week, often in Lake Zurich; travels to diving trade shows all over the world.
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