ESOcast Episode 8: **Behind every great astronomer stands a great engineer**		
00:03 **[Visual starts]** **[Narrator]** 1. At observatories worldwide most of the glory goes to the astronomers who provide us with new vistas of the heavens, but this is only possible thanks to the many experienced technicians and engineers who accomplish amazing work behind the scenes. They work against the clock to ensure that the telescopes function optimally to deliver outstanding results. But what does an engineer at ESO's Very Large Telescope actually do?		VLT at Paranal, People working at computers Telescope at sunset Engineers working on instruments UT exterior shot, camera pans to Roberto Castillo as he passes platform at sunset
00:33 **ESOcast intro** This is the ESOcast! Cutting-edge science and life behind the scenes of ESO, the European Southern Observatory. Exploring the Universe's ultimate frontier with our host Dr J, AKA Dr Joe Liske.		ESOcast intro *the world's most advanced optical telescope* *in search of our cosmic origins* *the world's biggest eye on the sky* *making sense of our Universe* *Brought to you by the European Southern Observatory. www.eso.org*
00:50 **[Dr. J]** 2. Welcome to another episode of the ESOcast. The completion of ESO's Very Large Telescope in the year 2000 was not only an amazing scientific achievement, but it was also a technological triumph. The VLT at mount Paranal is the world´s most advanced ground-based optical telescope and attracts astronomers from all over the world. But this complex, high-tech facility can only function because of the dedication of the Paranal Engineering Department. Highly skilled VLT engineers like Roberto Castillo work with unsurpassed precision against the clock to make sure that every single piece of high-tech machinery works perfectly. Let us now dive into an exciting day in the life of a VLT engineer.		Dr. J in virtual studio. Slate: HOST: Dr. J EPISODE 4: Background images: VLT at Paranal Roberto works in the Residencia
01:35 **[Narrator]** 3. Roberto Castillo works in the VLT instrument team. He is responsible for part of the VLT instruments and, as Unit Telescope Manager, he is in charge of handing over one of the four giant 8.2-metre telescopes to the astronomers at the beginning of each night. First stop: the office. Roberto checks on the		Roberto entering his car Car drives up to ctrl building Roberto enters building and heads for his office Roberto goes and sits at his desk Roberto works at computer

workload and identifies the most critical issues that must be dealt with. He interacts closely with colleagues and scientists who wish to have some of the instruments checked during that afternoon. The countdown has begun. All problems must be solved before sunset...		Roberto on the phone Roberto as he talks to female astronomer Image of the sky (daytime)
02:13 **[Dr J]** 4. Although this might seem a job like any other, the extreme complexity of the VLT presents a Paranal engineer with a variety of challenging tasks each of which must be performed quickly and with supreme precision. What's going on? …Roberto's on the radio….? Paranal, we have a problem…		Dr. J in virtual studio Background images: Roberto as he talks to female astronomer Solving problem in the VLT control room Roberto with an instrument Roberto with radio: "I'll go to the telescope to check the instrument."
02:38 **[Narrator]** 5. The problem must be solved. Roberto leaves his office and crosses the platform. Problems usually don't come alone. On his way to the telescope, Roberto interacts with his colleagues and checks some components. Each of the four giant VLT telescopes is equipped with several extremely powerful yet very delicate instruments. An engineer at Paranal must have a specialised knowledge of all the components in case of technical malfunctions, to ensure that the VLT is ready for observations every day, and "downtime" due to technical problems is kept to a minimum.		Roberto with radio Roberto grabs a hardhat Roberto on his way to UT2 Roberto talks to various people and checks instruments Panning views of instruments Visual of workers in telescope Roberto talks to various people and checks instruments
03:15 **[Dr J.]** 6. As sunset slowly approaches, Roberto's already engaged with his next important activity: the daily coordination meeting in the control building. This is where all the scientists and engineers get together to report on all the important issues encountered during the day and to prepare for the night. For Roberto, this moment is especially crucial. As a Unit Telescope Manager, he's responsible for handing over the telescope in perfect shape to the astronomers for the night. Let's follow him as time ticks away.		Dr. J in virtual studio Background images: Sky image: the sun is lower in the sky Coordination meeting footage Roberto talking Coordination meeting footage Meeting goers disperse
03:32 **[Narrator]** 7. Each minute becomes even more precious as sunset draws near. Roberto rushes to his telescope to initiate the standard start-up sequence. The telescope can be handed over to operations only when every single task in his checklist is complete. This moment is the culmination of all of Roberto's hard work, and with smooth and precise commands, the steel and glass giant gently awakes. The Sun has now completely set. This is		Roberto crosses platform at sunset, passing through light rays Telescope start up sequence Telescope swivels skyward in its enclosure Sun below horizon line Enclosure light is switched off, zoom out as dome opens Roberto with radio

the moment of truth. Roberto is now able to say the magic words to the telescope operator: **[Castillo]** Attention, UT2 operator... Go ahead... The telescope is ready for you.		
04:31 **[Dr. J]** 8. So, this finally marks the end of Roberto's challenging workday. The astronomers now take control of the VLT, and the telescope will soon come to life. As night falls over Paranal, and as the celestial display takes the front seat, Roberto is heading back to the Residencia to enjoy a relaxing dinner with his colleagues. Although his day is officially over, Roberto must remain reachable and prepared to react swiftly in case a problem should arise at the VLT during the night. Behind every great astronomer stands a great engineer. This is Dr J signing off for the ESOcast. Join me again next time for another cosmic adventure.		Dr. J in virtual studio Background images: VLTs Roberto leaves control building after sunset and drives downhill. Group of engineers, having dinner VLT sequence or engineers having dinner VLTs
05:10 **[Outro]**		*ESOcast is produced by ESO, the European Southern Observatory. www.eso.org* *ESO, the European Southern Observatory, is the pre-eminent intergovernmental science and technology organisation in astronomy designing, constructing and operating the world's most advanced ground-based telescopes.*

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