

T E X A S



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One Random Event

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One Random Event That Led to a Career She Didn't Know Existed

By Jane Kellogg

“You never know when one random event can set you on a trajectory that leads you to a career you did not even know existed.”



Today, Natalie Shagun is a “Discipline” Flight Test Weapons Engineer for Lockheed Martin Aeronautics at Edwards Air Force base in the California desert working to improve the performance for the Air Force F-35, called The Smart Fighter for the Warfighter, the F-35 Lightning II.

She says she sometimes spends a lot of hours at work, “so with flight tests our work life balance can be crazy. The schedule changes and you have to adapt to it which I personally think is very intriguing and desirable as an early career engineer.

One thing that has been fun on the job is working a night flight. Since Edwards is in the desert you drive across two lake beds and 2 base boundaries to get to the office. Driving this at night somehow felt entirely different...it's exciting! It is kind of cool but at the same time it's demanding. Some days we work 10-11 hours but on other days we might not. We have the ability to flex our time depending on what the warfighter (fighter jet) needs and what our pilots need in order to fly and test our software.

As discipline engineers (engineers in charge of a certain capability on the jet) we sit in a control room and observe the live telemetry/data given off from the flying plane as well as communicate to the pilot. Sometimes we can determine successful integration while in the control room in real-time, other times we have to wait for data collected for review.”

She primarily runs live missions dealing with weapon integration while the plane is being flown. Sometimes they are integrating a weapon from scratch and run live flight environmental tests. At other times they are verifying new capabilities with new jet software. Sometimes the engineers in the lab can verify that independently, but most times they re-verify with live flight tests.

And to think it all started way back in High School at Southwest Independent

School District located in the far southwest corner of San Antonio, Texas, when a friend stopped her in the hall and said, “oh man we need a passenger for our car and you’re tiny, would you want to come in and see if you fit in the seat?”

Never had she heard that anyone at the school was building a solar car, so she was somewhat skeptical, and she said, “oh I don’t know’ this sounds like a commitment. Then she asked if she had to show up some days just to get fitted in the seat and stuff, and he was, ‘don’t be crazy just come in,’ and so she did and was “dumbfounded.” She had no idea that the Southwest Engineering Team (SWET) even existed much less that they were designing and building a full-sized Solar car to compete in the 2015 Solar Car Challenge events at the world-famous Motor Sports facility - Texas Motor Speedway in Dallas, Texas.



Photo credit: photographer, Jonathan Case

When she saw what they were doing she saw it immediately as an opportunity to be a part of the team and do something more than just be a passenger. While she hadn't known about SWET she was interested in engineering and had taken a lot of STEM classes which enabled her to start working with design right away.

She drafted the rear suspension part of the car with another student. When the entire car team completed the design of the car, it was time to build and implement and test. Since the rear suspension was her design, she was tasked with overseeing and participating in the build. The team put something together, it was approved, and they installed it, then tested that it was operational at the school.

When they got to the Speedway, the suspension collapsed. The original plan was to have two bars and they only put one in for weight reduction. They realized then "we need to fix this now." They felt like a real-life shuttle launch or problem with an immediate need to be repaired. Instead of just hanging out relaxing or turning on the TV in that evening they realized the need to fix the now, so they all put their heads together and literally just did what they needed to do in order to get that car on the track, testing their solution by driving around in the parking lot of the hotel it. The car ready to go first thing the next day.

If it were not for her friend needing her as a passenger in the car, she said she would never have known about the program,



Natalie and team mates. Photo credit: photographer, Jonathan Case

and she definitely would not be where she is today without that experience. She would not have had the confidence that SWET gave her in those classes that made her feel she belonged. She noticed that a lot of people in her classes did not feel they had the skills to be where they were in college, but she did.

Being involved in that competition, and going to the Texas speedway, was quite the experience because she does not think, even now at her job where their work hours are so intensive, that she has ever been through that much duress or stress. Just seeing what they could do in a day was awesome so from her experience of doing this for a long time, with a lot of students, it was a real confidence builder.

With the positive solar car experience, she knew she wanted to get an Aerospace Engineering degree, and it would take funding from scholarships to do so. She found several and submitted applications to each including her experience with the Solar Car Challenge.

In her first intro class at the University of Texas, Austin. aerospace engineering program, or speakers from the corporate world came to the class to talk about their company, one of which was a person from Lockheed-Martin Skunkworks talking about the development of stealth Aircraft. She decided right then that was where she wanted to work someday.

She said the solar car project helped her in her intro classes because she was familiar with the machine shop and being familiar with general design because they touch on it in the beginning classes, but then they focus, and use those skills a lot more their senior year with the senior project when they had to build a plane, basically a drone that had autopilot.

She mentioned SWET in both her college applications and in her job interviews. In both the university and the companies asked her to “talk about a time when you experienced xyz.” She said she felt every single question that they asked kind of fell into her four-day race experience with SWET.

Jane Kellogg has a MS Degree from Oklahoma State University with 15 years’ experience teaching science in public schools and as an Adjunct Professor. She is a retired CEO of Kellogg & Sovereign® Consulting, LLC, a company she founded, an Instrument Rated Pilot, and Board Member of EAA Chapter 35.

She donates her time now mentoring students in the exciting Aviation STEM Program at Southwest High School in San Antonio, Texas.

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