

Women with impact!

Working as a woman in mobility engineering brings challenges and rewards.



At GM, Laura Wontrop Klauser has navigated positions in four areas, each one posing unique challenges. "My position in racing reminds me of my Formula SAE days, but now I'm also capable of leading the design of the racecar on the technical side," she told *Update*.

Women constitute just under 50 percent of the workforce, a number not too far off from their percentage of the general population. For women in STEM fields, that percentage reduces to only a quarter. However, for women in engineering, their relative representation is even less: only one in six engineers is female. Mechanical engineers make up a large majority of engineers in the automotive, aerospace, agriculture, and other subdivisions of the mobility industry. Women comprise less than 7 percent of mechanical engineers.

But this is only part of the story. For decades now, focus has been placed on determining and counteracting the contributors to these low statistics, with one potential solution which is nothing but not obvious, albeit still proven difficult to effectively execute: you have to be intentional about achieving any important goal. This can be said for companies as a whole as well as at the individual level.

"Women are still a minority in engineering at General Motors, but I am more likely to work with another female

engineer at GM than I was when in college, which is a testament to GM’s drive for diversity in the workforce,” said Laura Wontrop Klauser, Cadillac Racing Program Manager and one of 13 women in SAE’s 2019 Top Contributor Class.

At GM’s Canadian Technical Centre (CTC) in Oshawa, Ontario, the ratio of women to men is one to four. According to GM’s Diversity & Inclusion Report, in 2017, 33 percent of global hires were women. Similarly, in Japan, about 4 percent of managers are female across big businesses, but Nissan has achieved 10% after that company started a push for equality back in 2004, a decade before Toyota and Honda, all of which are vying for scarce female college engineering graduates.

As engineers are inherent problem-solvers, this situation begs the question: “What’s the problem here?” Furthermore, why is this push for more women even necessary?



Winner of the 2019 SAE/InterRegs Standards and Regulations Award, Sue Bai is a highly revered panel session organizer for SAE.

“With diversity in engineering comes the intersection of different perspectives and different ideas that might not have come about otherwise,” said Rhonda Walthall, Fellow, Prognostics & Health Management, Collins Aerospace. “New perspectives and ideas are important in driving innovation and building teams that perform at a high level.”



In 2000, Rodica Baranescu (far right) became SAE International’s first female President, and now has an award named after her. The Rodica Baranescu Award for Technical and Leadership Excellence celebrates the successes of women in the engineering profession and recognizes their leadership and technical contributions in the mobility industry. Shown here with her are the 2018 recipients of the award (left to right): Rhonda Walthall, Michele Kaiser, and Leslie Kilgore.

More and more women are seeking leadership roles at SAE. Whitney Roberts, pictured here, currently serves as the Chair of the SAE Detroit Section.



it needs to be encouraged and celebrated to feed an upward spiral of improvement and innovation! If you do what you've always done, you'll get what you've always had. That is clearly NOT where the mobility industries need to be at the moment, but I will trust you to be up-to-speed on all of the trends in electrification, AI, cybersecurity, etc., which are all moving at a breakneck pace! These are issues that will impact us all, so everyone needs to be a part of developing the solutions. That's the bottom line here.

The hurdles to implementing the desired degree of diversity are well-known by managers and those working in human resources, so I won't be introducing anything new here. In addition to the available number of qualified engineering applicants, there are many retention pressures in keeping women in the workplace: the cultural environment of a primarily male workforce; pregnancy, breastfeeding, and child-rearing, the responsibilities of which fall disproportionately to women; as well as burnout and career shifts outside of engineering in order to improve conditions relating to work-life balance.

In my personal experience, the stress of infertility issues before finally having a young infant at home led me to turn down a couple position offers while pregnant and nursing. Then while navigating a divorce and dividing time with a very young child, I couldn't find

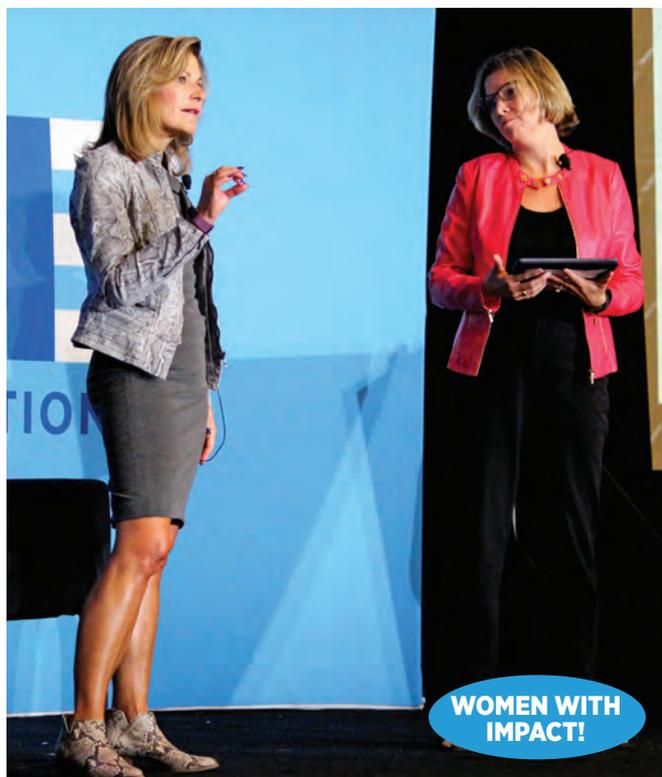


Pioneering female racing engineer Alba Colon always finds time to give back by volunteering at Formula SAE events.

Women and men have different thought patterns and life experiences, as do people of different ages, races, religions, countries, communities, etc. The buzzword here is "diversity," and regardless of what you call it,

any available part-time, off-shift, or remote positions available, so I ended up working outside of industry for a while. Becoming involved in leadership at the SAE Section level helped transition me back to the industry I'm so passionate about, but again now after a layoff I find myself being pulled in the direction of education, which seems to be the point at which we lose out on a lot of potential STEM talent.

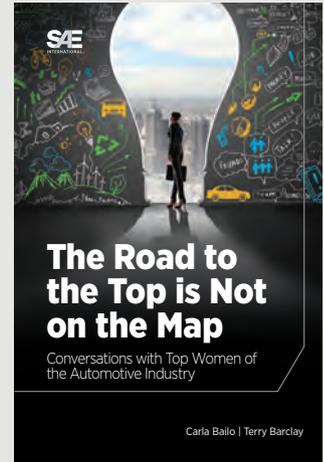
The path to becoming a female engineer is fraught with challenges, but not necessarily specific to the female condition. Requirements of engineers include a high degree of intelligence, common sense, and



Two highly accomplished engineers took center stage at COMVEC 2019: Carla Bailo (left) and Jennifer Rumsey.

The road to the top for women

Thirty-six of the most influential women in the automotive industry offer their insights and advice for colleagues, peers, and the next generation of women entering the workforce in the new book



published by SAE, [The Road to the Top is Not on the Map: Conversations with Top Women of the Automotive Industry](#).

The book is authored by Carla Bailo, CEO of the Center for Automotive Research (CAR), and Terry Barclay, CEO of Inforum. The book's 36 contributors—from suppliers to OEMs to higher education—candidly share their in-depth perspectives on the habits, motivations, triumphs, defeats, and lessons learned that helped them achieve top jobs in the industry.

“The women in this book share a passion for their careers and a passion for the industry,” said the co-authors. “They have encountered obstacles and the occasional failure, as well as successes, but they have embraced all their earned wisdom and generously agreed to share it.”

The book is relevant for women at all stages in their careers by providing real-world experiences to demonstrate how to take charge of one's career. The contributors offer poignant insights on such topics as career challenges, education and lifelong learning, mentor and sponsor relationships, personal satisfaction, resilience, and work-life integration.

creativity. Soft skills like communication, time management, and effective decision-making can make or break you along the way. Humans are social creatures, but many engineers can be considered introverted, so it is difficult to see or develop the support system to help along the way, especially as a female with a glaring lack of other female peers and role models.

“Engineering was a natural extension.” GM’s Klauser said. “Like all engineers, I had to make it through the classes and projects in college to achieve my degree and then handle the experience of ‘selling myself’ to

companies in hopes of grabbing that first job. Regardless of who you are, those things take work!”

Nevertheless, SAE recently saw females fairly well-represented among the 48 individuals in SAE’s 2019 Top Contributor Class. Thirteen women were recognized, disproportionately represented at over 25 percent in comparison to SAE professional membership, of which women constitute 7 percent. What can we learn from these distinguished women?

In this author’s experience, it was glaringly apparent as I navigated my

Anecdote from a female flight test engineer

One of my favorite memories dates back to when I was a flight test engineer on the C-17 program at Edwards Air Force Base from 1992-1995. There was a small number of female flight test engineers, but only one female pilot (Major Pam Melroy) and one female loadmaster. We were nearing the end of the engine performance validation phase, but still had numerous tests left to perform. On one particular flight, the pilot, flight test engineer in the cockpit, the loadmaster, and the two test engineers in the back of the plane (one of which was me) were all women. We had an exceptional day and completed all of the remaining required tests. During the post-flight debrief, one of the program chiefs (a male) said, “We handed the keys to the plane to the ladies and they finished the flight test program.” That was a proud moment for me, and it illustrated that women could excel in the same role that men had dominated for



Among other activities, Rhonda Walthall serves on the SAE International Board of Directors. Here she speaks at a session she organized for AeroTech 2018.

decades. Major Melroy went on to become a NASA astronaut and will be inducted into the Astronaut Hall of Fame on May 16, 2020.

By Rhonda Walthall

engineering coursework that I was in the minority, but I was also okay with it because being a little unique was important to me. Growing up, I always played with boys, loved Legos, the farm, flying, as well as getting my first car (a Saab!) and the independence that came with it.

All-in-all, it would be safe to summarize from the women of the SAE 2019 Top Contributor Class that they are not afraid to stand up to challenges and take on responsibilities that may otherwise go unfulfilled. They are excelling through leading by example. Unfortunately, a lot of the same personal characteristics that lead them to their relative successes carry with them a negative connotation as young women and girls. For example, the ones who can voice and execute what needs to be done are often perceived as “bossy.”

Klauser’s advice to young young women considering a career in the mobility industry: “Do it. Don’t worry about all the noise around you. Focus on your education. Focus on your goals. Prioritize communication skill building. You can be the smartest person in the room, but if you cannot convey your message, it doesn’t matter. Realize that there are some people out there that won’t like you for a stupid reason, and that’s OK. Stay polite and respectful but don’t waste your time trying to prove anything to them. If you stay true to you and work hard, most people will see that and respect you.”



For the past two years, Jace Unpingco of PACCAR has organized the young professional activities at the annual COMVEC conference.

So perhaps most importantly, considering the audience for this article is overwhelmingly male, in what ways can everyone be supportive of this drive for diversity? Well, want to take a guess at one of the biggest inspirations for me to become an engineer? My dad. He always took the time to satisfy my endless curiosity, put tools in my hands and showed how to use them, came with me to my campus visits, taught me how to drive a car with manual transmission, tractor, and semi. Putting in the time with boys and girls equivalently goes a long way towards the exposure, experience, and visibility that inspires career choices. SAE sets this up nicely through its AWIM program, so I would encourage you

**WOMEN WITH
IMPACT!**



In SAE's 2019 Top Contributor Class, women were over-represented at 25 percent in comparison to overall SAE female professional membership, which is 7 percent. Women in the Top Contributor Class include (sitting, left to right) Maura Chmielowiec, Lisa Boran, Jacque Bader, and Rhonda Walthall; (standing, left to right) Laura Wontrop Klauser, Angela Barber, Amalia Batori, Jennifer Lefever, and Kinsey Olson Sovern. Missing from the photo are Alba Colon, Suzanne Lightman, Simona Merola, and Jennifer Morrison.

to get involved as early in a child's life as possible, and to pay attention to the interactions you have with the younger generation. For older high school and college-aged kids, be a guest speaker in a STEM classroom or invite someone to job-shadow you. For younger colleagues and other peers, acknowledge the challenges and offer your support. Recognize accomplishments and show your

appreciation for positive attributes. Together, we can all create a concerted effort towards future female representation in the mobility industry. ■



Kinsey Olson Sovern, Chair of the SAE Dayton Section, wrote this article for *Update*.