Megan Jaunich - National Space Club Rising Star Award

Nominee

Megan Jaunich works as a System Safety Engineer supporting NASA/Kennedy Space Center on the Safety and Mission Assurance Support Services (SMASS) contract for Millennium Engineering and Integration Company. Megan is currently 26 years old.

Megan is a Graduate student in Systems Engineering at Stevens Institute of Technology with a 4.0 GPA. She earned her BS and MS in Mechanical Engineering from Florida Institute of Technology. She is part of the Florida Board of Professional Engineers as an Engineer in Training. She will sit for the Professional Engineering exam in April 2012.

Contributions and Accomplishments

Megan supports NASA's Launch Services Division as a System Safety Engineer on the Safety and Mission Assurance team. As part of the SMASS contract at KSC, her duties include overseeing Mission System Safety, Ground Systems Equipment System Safety, Operations Safety, and Emergency Response relating to ELVs, spacecraft, processing facilities, processing, and launch operations. This is achieved through hazard identification, evaluation, assessment of mitigation, and evaluation of risk for NASA KSC-owned resources that support ELV missions.

Megan serves as a primary Mission Safety Engineer on the following spacecraft: Mars Science Laboratory mission (MSL), as well as Infrared Region Imaging Spectrograph (IRIS), MArs Volatile EvolutioN (MAVEN), Solar Orbiter, Kepler, and Wide-field Infrared Survey Explorer (WISE). This entails acting as technical POC for system safety including planning, directing, reviewing, and evaluating a comprehensive Safety Program in support of the mission as well as ensuring that applicable agency, center, federal, state, and local safety requirements are implemented.

Megan performs in-depth assessments of safety-critical systems (e.g. spacecraft environmental control system) for MSL, IRIS, and MAVEN which involve research and review of system analyses; design and test history; FMEAs; safety mechanisms; and processing. In support of these activities, Megan facilitates many inter-organization meetings to address technical and safety issues associated with various spacecraft, Ground Support Equipment, testing, processing operations and hazardous procedures. For example, in 2010-11, she was the technical focal point for system safety design and evaluation as the Payload Safety Working Group chairperson. Megan directed, reviewed and evaluated comprehensive safety programs supporting these missions and ensured that applicable safety policies and requirements were implemented leading to more reliable and safer spacecraft design. She also has performed a detailed evaluation pertaining to system and operational safety for Launch Complex 17 at Cape Canaveral Air Force Station scheduled for NASA use in 2012.

Megan is an integral part of her division's efforts to develop and implement process improvements. She has identified many areas in which coworkers' efforts were not congruous with one another and has recommended processes to minimize these inconsistencies such as developing a more uniform and consistent method of assessing payload/spacecraft/instrument subsystems. She also initiated and maintains an action tracking log for the safety branch employees in order to improve traceability of assigned tasks. She has been recognized for these efforts by her NASA customer and company with the following awards:

- NASA Certificate of Appreciation, 2010
- NASA Group Achievement Award, 2010
- Millennium Engineering and Integration Certificate of Recognition, 2010
- NASA Kennedy Space Center Certificate of Appreciation, 2009
- Millennium Engineering and Integration Certificate of Recognition, 2009

Megan supports formal review and revision for NASA documents, including development of a major joint requirements document. She generated and reviewed official documentation describing systems which are non-compliant with NASA or USAF Range Safety requirements. She compiled technical data, information about safety controls and mitigation, and decision tree logic and presented technical and safety rationale for acceptance and use of non-compliant systems. Megan was responsible for briefing technical and safety non-compliances to NASA signature authorities and providing recommendation for acceptance or non-acceptance.

Megan has prepared the following publications/presentations:

- Jaunich, Megan and Dennis Clark. "Survey of NASA Mars Exploration Missions – Software Fault Protection Architecture." Presented at/Proceedings of the INCOSE Conference on Systems Engineering Research, April 2011, Redondo Beach, CA.
- Jaunich, Megan, Shreya Raje, K. Kim, Kunal Mitra, and Z. Guo. "Bio-heat transfer analysis during short pulse laser irradiation of tissues." International Journal of Heat and Mass Transfer 51 (23-24), (2008): pp. 5511-5521.
- Jaunich, Megan K., Shreya Raje, Kunal Mitra, Michael S. Grace, Molly Fahey, and Greg Spooner. "Ultra-short pulsed laser tissue ablation using focused laser beam." Proceedings of the SPIE 6854, 685416 (2008).
- Dutta, Ashim, Megan Kramer [Jaunich] (Presenting Author), Molly Fahey, Kunal Mitra, and Michael Grace. "Comparison of Thermal and Non-Thermal Ablation of Tumor Using Focused Short Pulse Laser Beam," Proceedings of the 2007 ASME Summer Bioengineering Conference, Keystone, Colorado, June 20-24, 2007. (2007) p. 77. SBC2007-176225.
- Fahey, Molly, Megan [Kramer] Jaunich, Ashim Dutta, Darrell Tata, Ronald Waynant, H. Lawrence Mason, and Kunal Mitra. "Non-Thermal Dental Ablation Using Ultra-Short Pulsed Near Infrared Laser," Proceedings of the 2007 ASME Summer Bioengineering Conference, Keystone, Colorado, June 20-24, 2007. (2007). p. 81. SBC2007-176403.

Community

Megan is a member of the Florida Space Coast Chapter of the Society of Women Engineers (SWE), American Society of Mechanical Engineers (ASME), Tau Beta Pi (TBP) Engineering Honor Society, and has also participated in KSC Launching Leaders and Founder's Forum of Brevard quarterly meetings. In 2010, Megan participated in several SWE activities, including networking and outreach events including "WOW that's Engineering" and Introduce a Girl to Engineering Workshop (IGEW), 1-day engineering events for girls in grades 3-8. Megan was assistant module leader for "Building Bridges" at IGEW. She was recently recognized as SWE's winner of their Technical Achievement Award for 2010.

Along with coworkers from Millennium, Megan helped implement an outreach program in which food, toiletry, and entertainment items are donated, packed, and shipped to US soldiers in Iraq and Afghanistan. She supports the Epilepsy Foundation and participated in the Brevard County Walk for Epilepsy. She has also served as volunteer coach for The Outreach Program for Soccer (TOPSoccer) – a community-based training and team placement program for young athletes with disabilities.

Recreationally, Megan participated in the Kennedy Space Center employees' tennis league in fall 2010. Megan is also active with cycling, running, and swimming, and she competed in a relay triathlon with two coworkers. Megan ran the 2010 Disney Marathon, and most recently completed the 2011 Boston Marathon.

Conclusion

It is rare to find a young engineer that is as talented from the start as Megan. She hit the ground running and has never looked back. Her dedication to her work is only equaled by the manner with which she gives back to the community.