Profiles in Computing

Steve Warford
Media Network Specialist
Scottsdale, AZ, USA

Education:
PhD Electrical Engineering (Digital Systems) - Arizona State University, 1974
MS Electrical Engineering (Digital Systems) - Arizona State University, 1968
BS Electrical Engineering - University of Kentucky, 1966

Advice to students: If you want a long, rewarding career in computing, consider the basis of your interest in computing – early, not later, in your educational process. Then, invest yourself in studies, people, and opportunities that make the most of your interest and talents.
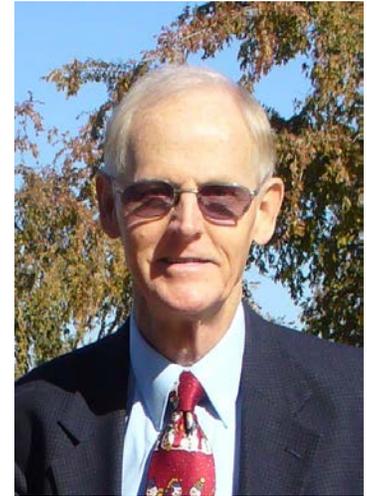
Q: Please describe your path to becoming the computing professional you are today.
A: I have always been fascinated with how things work. As a kid, I took all of my older sister's toys apart to discover their inner workings – of course, I never put them back together. My father and mother were both inquisitive and hands-on, so I grew up thinking everybody was like that and it became second nature to me. And, it did not hurt that I grew up during the Cold War and the Space Race – both of which produced great strides in computing and engineering. For me, the launching of Sputnik 1 by the USSR sealed the deal – I would become an engineer.

In those days, there were very few degree programs in computing. Most universities taught computing as a subspecialty of either mathematics or Electrical Engineering. I chose the latter route, earning a BSEE and growing increasingly interested in all things digital. Opting for a direct path to the PhD over joining the workforce, I sought a school that had a formal Digital Systems track within Electrical Engineering, and that has made all the difference, reinforcing my concept of computing as a tool and an enabler that would open diverse doors of opportunity over the course of my career.

Q: Please describe a computing-related work project of which you are most proud.
A: That would have to be the Shuttle Training Aircraft (STA) project. Fresh out of my PhD program, I joined the Shuttle Training Aircraft team at Sperry Flight systems. They had partnered with Grumman Aerospace Corporation to deliver an airborne trainer for teaching prospective Space Shuttle pilots how to control the actual Shuttle during the critical phases of an unpowered landing at the end of each mission. Each Shuttle Commander would make between 800 and 1000 landings at phantom runways, defined safely above terra firma, before getting the "keys" to the Shuttle.

As a member of the small team of engineers and programmers, I became involved, not only with the myriad of devices required to fly the aircraft under computer augmented control, but was assigned programming responsibilities for the Terminal Area Energy Management (TAEM) phase of the training flights.

With the thrust reversers deployed and the main landing gear down, the STA fell out of the sky like a rock. The TAEM software continuously calculated the total energy (potential and kinetic) of the STA and put it through a series of maneuvers to bleed off excess energy, allowing it to reach the runway threshold with just enough energy remaining for a safe, controlled landing.

Although the project to build the first STA only lasted a few years, the culmination of the project for me occurred in the summer of 2012 when I climbed on board the STA for the first time in 36 years. She had just been released from active duty with the closure of the Shuttle program and had been delivered to the Texas Air and Space Museum in Amarillo, TX – a tribute and memorial to Rick Husband, the Amarillo native who was in command of the Columbia when it disintegrated on reentry in 2003.

Q: What are your hobbies/ interests/ passions beyond working in computing?
A: Although I tend to live life as if everything is a "system" with inputs, outputs, and lots of processes in between, I also enjoy a wide range of activities that bring me satisfaction and stimulation beyond that – especially outdoor activities. Over the years, I have dabbled in gardening, tennis, woodworking, photography, minimalist art, stained glass, astronomy, and amateur radio. At 68, I still snow ski and ride my bicycle to work.

For the past five years, I have been a volunteer at the Arizona Science Center in Phoenix , where I help interpret the experiences of the Center in general, and specifically for amateur radio and digital processes, including embedded computing and computer control, in the My digital World exhibit. With that, comes the opportunity to advocate for engineering, computing, and science among the youngsters who visit our exhibits.