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FACULTY SPOTLIGHT: ELECTRONICS EXPERT JERRY SOMMERVILLE

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When Jerry Sommerville was a child he often wondered how the family television and car worked. His father let him try to fix both whenever they broke down. He quickly realized these machines were made up of interrelated systems and if he wanted to understand them he couldn't just focus on one area. This was the start of Sommerville's fascination with all types of engineering. Since then he has worked on the F-18 Super Hornet, NASA's Deep Space Network and Mars Rover landing tests. Sommerville is also a faculty member at [Westwood College – Inland Empire campus](#) where he shares his expertise with career-focused students.

[Were you curious to take apart the TV or car as a child, too? Check out Westwood's Electronics Technology degree here!](#)

How did you get started in the electronics industry?

Sommerville earned his bachelor of science in engineering at the University of California, Los Angeles.

"The program encouraged students to gain experience in every area of engineering (mechanical, structural, electrical) which gave me a very broad understanding of the discipline," he said.

After graduation he worked as a Project Engineer for TRW in the Ballistic Missile Division of Northrup-Grumman. Sommerville noticed that between thrust vector actuation systems, igniters and electrostatic discharge there was an electrical component to most of his projects. When he decided to go back to school for a master's degree he made electrical engineering his focus at California State Polytechnic University-Pomona.

What are some of the accomplishments you're most proud of in your career?

After earning his degree, Sommerville got a job with Sargent Fletcher, Inc. (now Cobham) a company contracting with the Department of Defense where he made his mark by developing a solution to a major problem with the [F-18 Super Hornet](#). The refueling store was located five inches from the landing gear doors on the plane, creating a large potential hazard. If the fuel hose did not retract properly it could interfere with proper deployment of the landing gear and cause the pilot to be unable to land on the aircraft carrier unless he or she severed the hose or jettisoned the refueling store into the ocean. Neither option was desirable.

Sommerville developed a sensor that determined if the hose reel was stowed properly or not. F-18s with his technology flew in the Gulf War and significantly increased tactical capabilities for the Navy. His design was so successful another company called [ForceSwitch](#) purchased the technology and still uses it today.

"I was there when they installed the first sensors and tested the aircraft at a facility in Pax River, Maryland in March of 1999. They had success in refueling four or five different aircraft. It was quite an event for me to see my idea come to fruition," Sommerville said. Visit the [Boeing site](#) to see more information about this milestone of F-18 E/F Aircraft development

He's also proud of his work with NASA's Jet Propulsion Laboratory (where [Inland Empire faculty member](#) Eric Aguilar also works). While there Sommerville worked on a Hydro-Static Transmission that was used for JPL's Deep Space Network. He also worked on a project for the Mars Science Lab and positioning systems for Mars Rover landing tests.

"Instrumentation for testing and data acquisition, those are areas of great value in the engineering field if you know how to apply them. There's a conceptual part of engineering where you come up with ideas. But then you have to verify if that idea really works. That's where these skills are really valuable," said Sommerville.



Jerry's patch that the Navy gave him after their successful qualification of the aerial refueling store at Pax River Md, in March 1999

Tell us about your project that is currently in review for a patent.

While working on his master's project titled "An Algorithm of Locomotion for a Quadruped" Sommerville developed the mathematical theory that was the basis for his Laser Guided Robot Patent Application.

"The idea came from many of my past jobs. Working with rocket propulsion, one of my specialties was computer programs that simulated performance on missiles. I used this knowledge of physics and computer programming in my robot project. Later I figured out how to use lasers to measure distance while working on a robot that could walk over uneven terrain as an extension of my master's project. This is where all the pieces come together: software, mechanics (kinematics, dynamics) and electrical controls.

"I brought the laser prototype to Friends & Family Day at Westwood and demonstrated how it can measure distance accurately up to 30 feet. We measured a poster on back wall with a measuring tape and the laser. The tape measure said 2 feet, 5 inches. My meter said 2.4125 from 20 feet away. The reason the comparison is close because it measures spherical coordinates accurately using electronics," Sommerville explained.

How do you balance this with your responsibilities as a Westwood faculty member?

"A lot of what I'm doing is related to the classes I'm teaching. Because I've worked with computers a lot, I also teach **digital electronics classes**. I have a prototype mouse-controlled robot hardware that I call the "flexbot" that I encourage students to investigate."

Check out a video and software demonstration of the [laser positioning system here](#).

Do you have any career advice for our students?

"I encourage them to keep an open mindset. A lot of the students in my classes this term are IT-focused computer science majors. They see IT as servers, networks and databases. I encourage them to think more broadly, to think like entrepreneurs. There are up-and-coming services in the industry they could learn about and start their own businesses. For example, servicing information from submeters that measure water and power usage. They don't have to be focused on one particular role or conventional roles. There are emerging technologies that can take them many different places."

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