Ex-NASA Astronaut T.K. Mattingly Charms RenCen Tech Show

by Gerald Scott
News Dept.

Nothing like a former NASA astronaut to impress the dickens out of the local Motor City auto industry.

So it was at supplier Altair's Hyperworks software conference at the GM RenCen in Detroit last week, where retired NASA astronaut Thomas "T.K." Mattingly held court as the featured speaker.

It seems Altair ProductDesign, a unit of Troy-based Altair, has lately been working with NASA on the Orion Crew Module, so Mattingly's visit was more than a coincidence.

Altair ProductDesign has been honored by the NASA Engineering and Safety Center for its contribution to the water drop-testing of the Orion Crew Module. The company successfully developed modeling methods and performed dynamic water impact simulations to help improve the safety systems and structure of the module.

The planned Orion Crew Module houses NASA astronauts during space travel and allows them to safely descend back to Earth from orbit after mission completion. As the Earth "water landing" is a highly complex and dynamic event, the NESC engaged with Altair ProductDesign as part of its larger assignment team to develop critical simulation models for the Crew Module.

"Preparing to take advantage of complex technologies requires exceptional teamwork and expertise," said Mattingly, who is now director of space enterprise for Systems Planning & Analysis, Inc.

"As a mentor to the Orion drop-test team members, I know that the success of this project reflected the significant contributions of the Altair ProductDesign team, whose precision, speed, accuracy and insights in modeling and simulation proved to be crucial to our efforts."

The collaborative efforts of the Crew Module Water Landing Assessment Team proved so valuable that the NASA NESC Center presented it with its Group Achievement Award last November, citing the team's "outstanding accomplishments through the coordination of individual efforts that have contributed substantially to the achievement of the NESC mission."

Apollo 16 blasts off from Cape Kennedy back in 1972 with T.K. Mattingly aboard the moon mission as the command module pilot. Mattingly spoke at the RenCen in Detroit last week.

So, score another victory for the Detroit auto industry in making a major contribution – thank you, Altair – to NASA and the space program.

The Motor City's history of serving NASA goes back to the beginning of the space race in the 1950s and early 1960s when the Redstone missile, which launched the Explorer I satellite and the first two manned, Mercury capsules into space, was built by Chrysler in Sterling Heights.

In the 1970s, Chrysler also built the rocket boosters that put the pieces of Skylab, this country's first such space station, into orbit.

Also, in the race to the Moon versus the Soviets, General Motors and Boeing combined to develop the Lunar Rover, the electric buggy that Apollo program astronauts used to go cruising on the moon. (The Henry Ford Museum in Dearborn has one of the Lunar Rover prototypes that it occasionally puts on display, by the way).

Mattingly's career, meanwhile, overlapped both the Apollo program and the space shuttle launches.

As was depicted in the movie, "Apollo 13," Mattingly was scheduled to fly on that ill-fated mission but he was pulled from the primary flight crew at the last minute because of his exposure to German measles (which he never contracted).

Mattingly was replaced by Jack Swigert on the Apollo 13 flight, the one that famously suffered an explosion and limped back to Earth with the crew narrowly surviving a catastrophic tragedy. Mattingly monitored events from the ground for that flight.

Later in his career, in the 1980s, Mattingly also flew on two separate space shuttle missions aboard the Columbia and the Discovery.

All of which brought him to Detroit and the RenCen conference, where his speech was actually entitled, "Simulation, Reality and Humans," all in keeping with the design-software conference's overriding themes.

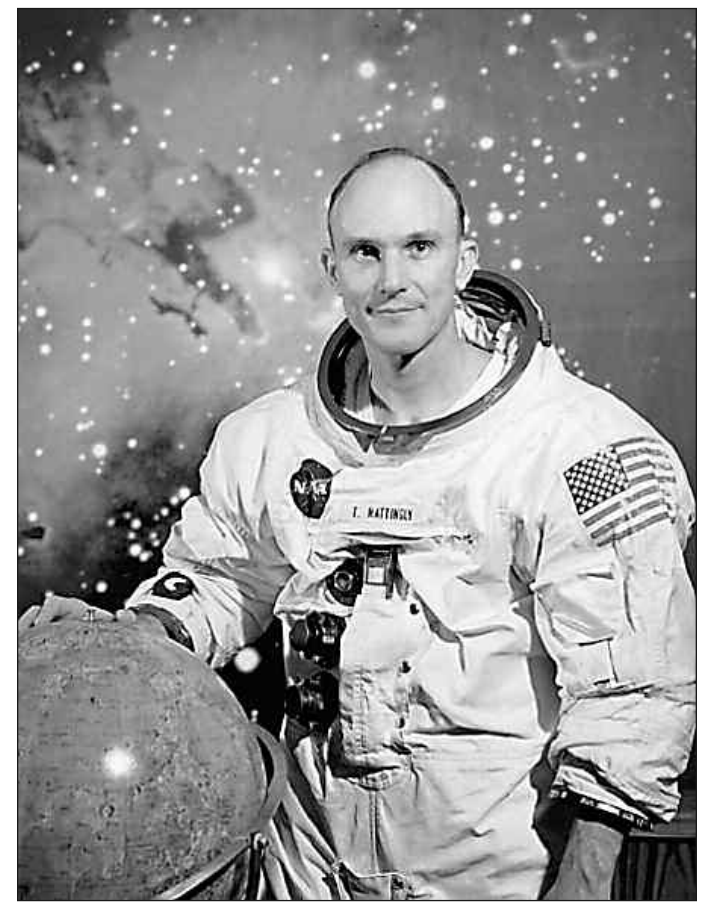
"So that's where this idea of the real world: the physics of what we think we're doing and human nature comes in," Mattingly said.

"People find different ways and see things differently. As engineers building systems, our job is to accommodate the whole thing and keep it within some kind of rational restraints.

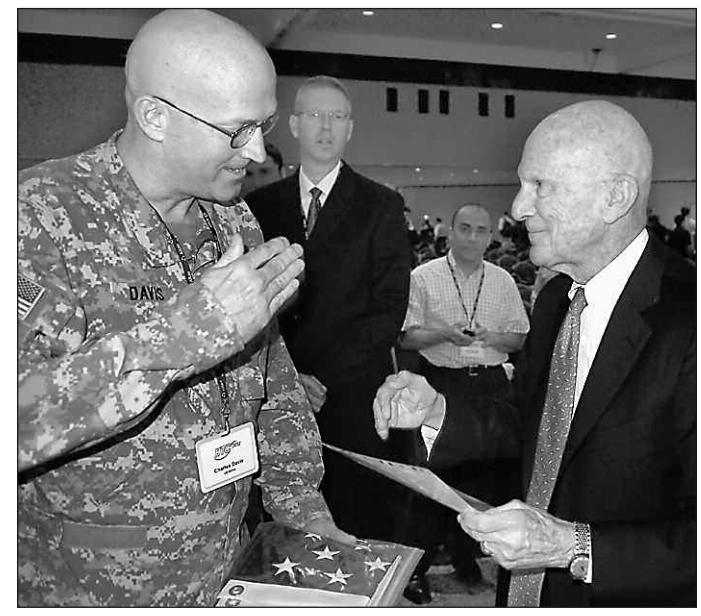
"So, that's the reason this simulation world and the way in which we design stuff, comes together and coalesce and it produces some valuable results."

Mattingly said that in spite of some Hollywood drama, virtually every solution the astronauts applied to NASA's flight and power problems on Apollo 13 had actually been tried out and attempted during the earlier test phase first.

Apollo 13 was the seventh manned mission of the Apollo space program and the third that was intended to land on the moon. The lunar landing was aborted after an oxygen tank exploded two days into the mission, crippling the service module, which was critical to the command module. The crew returned safely to Earth six days after launch.



Retired NASA astronaut T.K. Mattingly seen during his Apollo space program years in the early 1970s. The former Apollo 16 command module pilot is now director of space enterprise for Systems Planning & Analysis, Inc., a NASA contractor.



U.S. Army Citation pilot Charles Davis, left, drove all the way from Camp McCoy, Wis., to the RenCen in Detroit to present retired NASA astronaut T.K. Mattingly with a flag that rode inside of Davis' aircraft in Afghanistan recently. Mattingly spoke at the HyperWorks design conference hosted by supplier Altair of Troy.