Cyber Safety of Transportation

Abstract: Transportation is changing dramatically. Soon, cars will drive while the enclosed humans snooze or send texts. Trains will slow and speed certain that they alone occupy the underlying track. Airborne drones will fly confidently between buildings to monitor air pollution and crime in our cities. For all of this, transportation will be safer and have less impact on our environment. However, this new world of movement will need to be protected from cyber terrorists, e-criminals and hackers. These bad actors will now ply their trades on the mobile transactions between these driverless vehicles rather than rack-bound computers. Our Cyber Safety effort combines efforts from Aeronautics, Astronautics, Computer Science, Electrical Engineering, Mechanical Engineering and Physics to blunt this danger to the future of transportation. This presentation will focus on the protection of the Global Navigation Satellite Systems (i.e. GPS, Galileo, GLONASS, Beidou, QZSS and IRNSS).

Bio: Professor Per Enge was born in Bergen, Norway; and he was raised outside of Boston, Massachusetts. He received his Bachelor’s Degree from the University of Massachusetts in 1975; and his Masters and PhD Degrees from the University of Illinois in 1979 and 1983. Since 1993, he has been a Professor at Stanford University, where he is the Vance and Arlene Coffman Professor in the School of Engineering. Professor Enge is also the Director of the Stanford Center for Position Navigation and Time. This laboratory pioneers satellite-based navigation systems for civilian air, rail and maritime use. Two of these systems have been deployed worldwide. For his work, Professor Enge was elected to the National Academy of Engineering in 2005; he is a fellow of the ION and the IEEE; he is also a former President of the U.S. Institute of Navigation; and the U.S. Air Force inducted him into the GPS Hall of Fame in 2012.