

Welcome Address from the President at Unmanned Vehicle University

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I would like to personally welcome you to the exciting career field of unmanned systems and the first edition of the International Journal of Unmanned Systems Engineering (IJUSEng). Unmanned systems engineers are critical to the positions of technical management and development of complex unmanned systems. These professionals are responsible for planning, coordinating, and budgeting group efforts that translate operational needs into technology requirements. They use their skills to determine whether a system will meet cost, schedule, and performance goals. Systems engineers perform a central role in realizing an unmanned systems success; they are in great demand by industry and government.

Systems engineering applies to everything from a large unmanned system to computer hardware and software. It's a big-picture view that considers every aspect of a project, from costs and environmental impact, to time lines and life expectancy of equipment. Because it encompasses many disciplines, it can help engineers from diverse fields better understand how to solve problems. Unmanned Vehicle University offers interdisciplinary degree programs that cover modeling, simulation, design, architecture, integration, and testing of complex unmanned systems and pro-

cesses. Students are supplied with underlying theoretical knowledge and practical experience applicable to unmanned systems. An unmanned systems engineering degree will provide expert knowledge so that graduates can apply for employment in engineering, design, development, integration and test of unmanned air, ground and sea systems. Graduates from our online degree programs will have opportunities as chief engineers, engineering managers, and project managers.

Unmanned systems are an important part of the US and World economy. For unmanned aircraft systems alone, the Teal Group predicts the worldwide market will total an average of \$9 Billion per year for the next 10 years. Wintergreen Research predicts the total market will be \$51 Billion by 2018. Laws have recently been passed in the USA to mandate that the FAA integrate civil aircraft with military, commercial and civil UAV operations. Even the FAA Aerospace Forecast for FY 2012-2032 predicts that in 5 years, the total number of commercial UAVs flying in US National airspace will be over 10,000 vehicles.

The focus of the IJUSEng is on research efforts into civil and commercial applications for unmanned systems.

Many countries including Canada, the UK and Australia already allow commercial operations of unmanned aircraft systems (UAS). The USA is taking a much slower approach to integrate UAS into the National Airspace System (NAS) and recent progress has already been made. In May, 2012, the FAA passed a law that allows police and firefighting agencies to operate small UAVs below 25 pounds with an expedited Certificate of Authorization (COA). This is a large step in the direction of allowing civil and commercial UAVs to fly in US National Airspace. Within the next year, a law (Special Federal Aviation Rule Part 107) will be passed to allow anyone to commercially operate small UAVs below a certain

weight to operate in US National airspace.

Unmanned ground and sea systems (UGV, UUV and USV) also play an important part of future unmanned systems. The USA budget for Unmanned Ground and Sea Systems has a five year funding total of \$2 Billion. Driverless cars are now licensed to drive in Nevada and California and General Motors says it could have driverless cars on the road by 2018. The Mars Curiosity lander has discovered proof of flowing water on Mars, a major science achievement. After Hurricane Sandy, Unmanned Underwater Vehicles could play a part in future hurricane forecasting.

The future is bright for all unmanned systems!

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