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Electrical Utility Line Inspection using Unmanned Aircraft

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Dennis Lott HINDS CC Aviation UAS Director

The Federal Aviation Administration recently released 14CFR Part 107 rules for operation of small Unmanned Aircraft Systems (sUAS) in the US airspace. These rules apply to both commercial and non-commercial operation of sUAS but exclude hobby or recreational operation matching guidelines set by the Academy of Model Aeronautics (<http://www.modelaircraft.org/>). In the State of Mississippi, HINDS Community College has lead the development, training and operation of sUAS for more than 5 years thanks to Dennis Lott HINDS CC Aviation UAS Director. See the hindsc.edu search for UAS for more information.

Electrical Utility Line Inspection using expensive manned helicopter operations is rapidly being replaced by cost effective, safe sUAS inspections. These SUAS may be flown autonomously or by remote piloting. Miniature autopilots sense data from compass and GPS signals to control flights. The list of companies performing these inspections includes Aibotix, Edison Electric Institute, Hill Country Aerial Vehicles and Dominion Energy, and more. Careers in this field offer autonomous programming, sUAS maintenance, aerial photography, navigation, and flight systems.

Dennis Lott Biography dennis.lott@hindsc.edu

Dennis has been designing, building, and flying remote controlled unmanned aircraft since he was 10 years old. He built his first remote controlled aircraft at age 14. He also took his first flying lesson the day after his fourteenth birthday, continuing his pilot training until earning a commercial pilot certificate at the age of 24.

Dennis attended Mississippi Delta Junior College and Delta state University while pursuing a degree in Business Administration. After college, it did not take long for the lure of aviation to lead him to a career as an aerial applicator, aka crop duster. These experiences and a lifelong pursuit of unmanned aviation led Dennis to establish an Unmanned Aircraft Systems manufacturing and consulting business in 2007. The commercial side of that business was put on hold while the FAA deliberated over rules of operation in the National Airspace. During this time Dennis continued his passion of designing, building and flying multirotor and fixed wing unmanned aircraft with a focus on vehicles optimized for precision agriculture operations. This agriculture focus expanded to vehicles designed for search and rescue, building inspection, tower inspection, and surveying.

In July 2013, Dennis came to Hinds Community College to develop and launch the Unmanned Aircraft Systems associates degree program. The HCC UAS program is one of the first community college programs in the nation to offer UAS pilot/operator training.

During this time, he has been invited to speak on the use of unmanned aircraft systems in precision agriculture at the Georgia Tech Research Institute precision ag conference in Tifton Georgia, the FAA Inspector Authorization Training Conference in Raymond MS, participate on curriculum writing committees for Hinds Community College and the Mississippi State Community College Board Precision Agriculture curriculum writing committee, speak at Camp Shelby Joint Forces Training Center/Open Technology Center UAS and Cyber Security conference, and other venues.

Dennis organized, trained and led the Red Cell Aggressor UAS team for the Department of Defense Thunderstorm exercise led by Pennsylvania State University at Camp Shelby JFTC.

In addition to his work at Hinds Community College, Dennis developed special purpose UAS projects for public safety organizations and trains public safety personnel in the safe and effective use of UAS in search and rescue and post disaster survey and monitoring operations.

Member Association of Unmanned Vehicle Systems International and Member Unmanned Aerial Vehicle Systems Association

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Mr. Ogan recently was a Senior Research Engineer at Georgia Tech Research Institute working on the Missile Defense Agency program supporting systems engineering and sensor developments. Prior experience at Raytheon Systems Company, Forest, MS and El Segundo, CA included development, design and testing of advanced Electronically Scanned Phased Array (AESAs) radar systems for the F/A-15 and F/A-18 aircraft. Skills include certified Six Sigma Specialist, Integrated Product Design Performance IPDP lead using SLATE and DOORS® software for systems allocations.

Professional experience also includes, telecommunications and space communications system for military and commercial applications in ground based, airborne and space based electronics. Mr. Ogan, worked as a Industry Adjunct Instructor at the University of North Texas, developed and taught a project-oriented course Radio Frequency Identification technology (RFID) for engineering in support of a National Science Foundation grant.

Mr. Ogan is a certified Six Sigma Specialist with several projects completed that resulted in total program savings in millions of dollars. Analysis skills include MATLAB radar modeling simulations and device characterization electrical design and improvement

Mr. Ogan is an IEEE Life Senior Member, Civil Air Patrol, USAF auxiliary Pilot and member of the Association of Unmanned Vehicle Systems International www.auvsi.org and AOPA.