



Autonomous Lecture Capture in Undergraduate Aerodynamics: System Description, Demonstration, and Benefits for Traditional and Remote Instruction

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Abstract:

Introduction: The author has used a lecture capture system (Swivl) since the fall of 2015. It began as a State-funded technology review and was quickly adopted by the author for everyday use when the benefits became apparent. The author's original intent was to be able to provide aerodynamics lecture videos for at-risk student groups (i.e. members of the armed forces, single parents, student athletes, etc.) in addition to students who wanted to review lecture material. The videos have been used for these purposes in addition to allowing the author to attend conferences and continuing education classes without detriment to his classes. With all aerodynamics classes now being transitioned to remote delivery due to COVID-19, the repository of class lectures have become invaluable for allowing the author's classes to continue with little interruption. The author will describe the system, demonstrate its use, and will provide examples of its benefits.

Conclusion: Autonomous lecture capture in undergraduate aerodynamics classes provides benefits to students and professors especially as courses across the Nation have shifted to Remote or Online formats.

Keywords: Aerodynamics, Remote, Online, Autonomous, Lecture Capture.

Relevant Image:



Biography:

Mark "Nate" Callender joined the Aerospace Department at Middle Tennessee State University (MTSU) in 2005. He earned an M.S. in Aviation Systems and a Ph.D. in Engineering Science from the University of Tennessee Space Institute. He teaches courses within and coordinates the Aerospace Technology concentration; supervises the Aerospace Technology Laboratory; mentors undergraduate and graduate researchers; chairs departmental and university committees; is a member of the EXL, Honors, and Graduate faculty; and is an Associate Chair of the Aerospace Department. Dr. Callender's tries to inspire his students in the "pursuit of wisdom" by pursuing it himself. He wants his students to discover the truth of the proverb "blessed is the one who finds wisdom, and the one who gets understanding" (Proverbs 3:13). He has used a robot in the classroom for recording lectures that he provides to students upon request. Approximately 900 lectures have been recorded to date.