

Abstract Submitted
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**Active Flow Control over a
3D Articulating Turret** RYAN D. WALLACE, PATRICK R. SHEA, Syracuse
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Corp, MARK N. GLAUSER, Syracuse University — An investigation of active flow
control was conducted on an articulating 3D turret with a flat aperture using suction
as the control input. Observability of the system was obtained by simultaneously
sampled dynamic surface pressure at multiple locations around the aperture along
with velocity flow field at the center plane of the turret. Both open loop and closed-
loop control cases are examined for the purpose of reducing the turbulent fluctuations
directly over the aperture. Open-loop control reduces the separation in the flow and
decreases the levels of turbulence above the aperture. The large database of no con-
trol and open-loop control also provides a basis to develop closed-loop control. For
closed-loop control, a simple proportional controller will feed back a low dimensional
estimation of the flow based on dynamic surface pressure and velocity in an effort
to improve upon the open-control cases.

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