

Active Wing Shaping Control of a Morphing Aircraft

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This project performs the control system design of a passenger aircraft with highly flexible wings, being conceptualized by NASA. The flexible wings enable change of the wing twist and bending in flight so as to achieve a local angle of attack distribution that is optimal for the specific flight condition. This leads to lower fuel consumption, which lowers emissions and benefits the environment. The aircraft has twenty-three control surfaces, distributed along the trailing and leading edges of each wing that are actively controlled. An output feedback controller is designed, and simulation results demonstrate the validity of this controller.