

Ryan Peoples

I am currently a master's student in ACDL working with Prof. Karen Willcox on research concerned with joint performance/financial multidisciplinary design optimization of aircraft systems. In particular, we are interested in identifying any potential design tradeoffs between performance and financial factors, as well as assessing the effects of performance, cost, and revenue uncertainty on program value in the context of Boeing's BWB concept.

My project for 16.888 ties in very closely with my research. With Todd Schuman, I am developing a framework to couple an aircraft sizing and performance simulation with cost and revenue estimators, which is then incorporated into an optimization routine. Using the aircraft's range and passenger capacity, and possibly other parameters, as design variables, the goal of our software is to maximize program value, minimize maximum takeoff weight, or both. This optimization framework can then be further modified to provide a higher-order model for investigating the key issues of my research.

For the past 2 years, I worked at the Institute for Defense Analyses (IDA), in the Science and Technology Division. This job involved technical analysis of current and future defense technologies, including basic sizing studies of notional UAV concepts, modeling of ballistic missile defense systems, and design of "intelligent" landmines.

I graduated in 2000 from MIT with a bachelor's degree in Aeronautics & Astronautics. My coursework concentrated primarily on aerospace materials and structures, and I held several UROPs in the department's Technology Lab for Advanced Composites. Prior to my senior year, I interned at IDA in the division mentioned previously. The summer before that, I held an internship at Lockheed Martin's Skunk Works, working with a structures team in their advanced programs group on the design of a heavy-lift cargo aircraft/lighter-than-air hybrid.

My interests include all manner of defense systems, especially aircraft; aircraft systems; aerospace materials; and aviation history. Within the materials discipline, my interest lies primarily in manufacturing of and applications for composite materials. I'm also a baseball fan and ran for MIT's cross-country team this past fall.