

Recent Trends in Airline Optimization

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Abstract

The airline industry has a long history of developing and applying optimization techniques for the purposes of designing flight schedules, scheduling aircraft and crews, and recovering airline operations from disruptions. In this talk, we provide a quick overview of the historical accomplishments in airline schedule planning and operations control, including flight schedule design, fleet assignment, aircraft maintenance routing, and crew scheduling. Then, we focus the majority of the talk on current challenges and opportunities in the airline industry and describe impacts that operations researchers can have through robust scheduling, dynamic scheduling and operations recovery.

Speaker Biography

At MIT, Cynthia Barnhart is Associate Dean for Academic Affairs of the School of Engineering, Professor of Civil and Environmental Engineering and the Engineering Systems Division, and Co-Director of the Operations Research Center. Professor Barnhart's research and teaching activities have focused on the development of optimization models and methods for designing, planning and operating transportation systems. She currently serves or has served as Area Editor (Transportation) for Operations Research, as Associate Editor for Operations Research and for Transportation Science, as President of the INFORMS Women in Operations Research/Management Science Forum, as President of the INFORMS Transportation and Logistics Section, as President of INFORMS, and as Co-Director of MIT's Center for Transportation and Logistics. Professor Barnhart has been awarded the Franz Edelman 2nd Prize for Achievement in Operations and the Management Sciences, the Junior Faculty Career Award from the General Electric Foundation, the Presidential Young Investigator Award from NSF, the First Prize Award for Best Paper in Transportation Science & Logistics, and the INFORMS award for the Advancement of Women in Operations Research and Management Science.

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