



Jianzhong "Jay" Wang **Associate Vice President**

SPS

Overview

Dr. Wang leads the SPS Simulation Practice. Before joining SPS, he was the Airfield and Airspace Project Manager at DY Consultants, where he managed a few JFK airport redevelopment related projects. While previously with L&B, he led and successfully accomplished the Guangzhou International Airport Airside and Airspace Simulation Analysis project. It is by far the most extensive simulation study of airside/airspace operation in China. The results of the study are being used to assist the airport authority in refining the airfield configuration, operation and phasing of long-term development and to identify opportunities to optimize the capacity of the integrated airfield and airspace system. He also led and successfully accomplished airfield/airspace capacity assessments for Melbourne International Airport, Shenzhen International Airport, new Dubai World Central International Airport, Xiamen International Airport, Dubai International Airport, Sydney International Airport, Beijing Capital International Airport, and Beijing Second Airport Runway Alignment Study. Other projects include multiple planning and design competitions at Beijing, Shanghai, Guangzhou, Kunming, etc. Before joining L&B, Dr. Wang served as a NASA contractor at Ames Research Center since 1999. He was the lead life-cycle cost/benefit analyst of several NASA air traffic control research and development projects, including the Advanced Air Transportation Technologies (AATT) project, and the Efficient Flight Path Management (EFPM) project. The AATT project is aimed at developing advanced air traffic control concepts and decision support tools to improve the efficiency of the national as well as global air transportation system.

Life-cycle Cost Analysis

Using historical FAA cost data, Dr. Wang developed a life-cycle cost model to assess potential costs of development, deployment, operation, and maintenance of NASA-developed software tools. These tools were designed to provide assistance to air traffic controllers and airline operation specialists for situation awareness and provide them with decision support. This model was the first of its kind and praised by both NASA and the FAA. The AATT decision support tools he was involved with include the Traffic Management Advisor (TMA), the Final Approach Spacing Tool (FAST), the Expedite Departure Path (EDP), the En-route Descent Advisor (EDA), the Traffic Flow Management Research & Development (TFM R&D) tools, and the Regional Metering (RM) tool, etc. In addition, he was also involved in the potential benefits assessment of AATT Surface Decision Support Tools, including Surface Management Advisor (SMA), Low/Zero Visibility Tower Tools (L/ZVTT), etc.

Airspace/Airfield Simulation

Dr. Wang is highly skilled with TAAM, AirTOP, CAST, and other simulation and modelling tools. He played key roles in several air traffic analysis projects while working at DY and L&B, including JFK, Melbourne, Sydney, Beijing, Guangzhou, Shenzhen, Shanghai, and Dubai. As a team leader and lead analyst at NASA Ames, he developed several TAAM models to evaluate potential benefits of AATT tools, including but not limited to the Surface Management System (SMS) and the Expedite Departure Path (EDP). Modelled airports/airspace include: the Pearl River Delta airspace, the Greater Washington Area airspace, Dallas-Fort Worth International airport, Atlanta Hartsfield-Jackson International airport, as well as the San Francisco Bay Area airspace.

Advanced Composite Materials

After receiving his doctoral degree in Mechanical Engineering in 1995, Dr. Wang served as Manager and lecturer at the Advanced Composite Material Testing and Manufacturing Laboratory at Cal State, Long Beach. For 4 years he led the NASA Advanced Composite Technology Wing Program Testing Project, while teaching and conducting research in advanced composite materials.

Professional Contributions

Dr. Wang has written and presented dozens of papers in the air traffic control, cost assessment, and advanced composites field. He won several best paper awards for his presentations at various professional conferences. He is a member of the NASA award winning AATT project team. He also chaired a few professional user groups.

Past Employment

- DY Consultants (2018)
- Landrum & Brown (2005-2018)
- NASA Ames Research Center (1999-2005)

Education

- Master of Science, Mechanical Engineering – SUNY Buffalo
- Doctor of Philosophy, Mechanical Engineering – SUNY Buffalo

Airport Clients - Functional Services Provided

A partial listing of airports and services which Dr. Wang has personally provided follows:

- **New York JFK International Airport - 2018**
 - Airfield Planning and Functional Plan Development
 - Master Planning and Near-Term Program Planning
- **Kunming Changshui International Airport - 2017**
 - Master Plan Update Simulation Analysis
- **Shanghai Pudong Airport – 2005, 2014, 2017**
 - Master Plan Airside Simulation Analysis
 - Terminal Gate Studies
 - South Terminal Simulation
- **Yantai Airport – 2016**
 - T2 Apron Operation Simulation Analysis
- **Shenzhen International Airport – 2005, 2016**
 - Noise Exposure Contours
 - Airfield Capacity Analysis
 - Airspace Constraints Analysis
- **Xi'an Xianyang International Airport – 2014, 2015**
 - Flight Delay Management Phase II
 - Master Plan Capacity Analysis
- **Beijing Capital Airport - 2014**
 - Short Term Delay Reduction
- **Qingdao New Airport – 2014**
 - Airfield/Terminal Simulation Analysis
- **Guangzhou Airport – 2006, 2012, 2014**
 - Short Term Delay Reduction
 - T2 Apron Capacity Analysis
 - Airspace/Airfield Capacity Analysis
- **Xiamen Airport – 2009, 2013**
 - Airfield Capacity Simulation Analysis
 - Airfield Expansion Assessment
 - Aircraft Parking and GSE Analysis
- **Melbourne Airport – 2007, 2012**
 - Airspace/Airfield Capacity and Delay Analysis
 - High Speed Exit Taxiway
 - Benefit/Cost Analysis
- **Sydney Airport - 2011**
 - Airfield Capacity Review
 - Master Plan layout Assessment
- **Beijing 2nd Airport – 2011**
 - Runway Alignment and Capacity Study
 - Airfield Capacity Assessment
- **Dubai International Airport - 2010**
 - Stand & Airfield Capacity Solutions
 - Determine the overall aviation capacity
 - Quantify the scale, timing and costs for enhancements
- **Dubai World Central Airport - 2008**
 - Airfield/Airside Capacity and Simulation Analysis
 - High Speed Exit Taxiway
 - Runway Construction Phasing
 - Taxiway System Optimization
 - Benefit/Cost Analysis
- **Other Projects**
 - Benefits Assessment of Tailored Arrivals
 - Benefits Assessment of En Route Descent Advisor
 - Life-Cycle Cost Assessment of En Route Descent Advisor
 - Previous EDA Benefits Studies Relevance Assessment
 - Life-Cycle Cost/Benefit Assessment of Regional Metering
 - Life-Cycle Cost/Benefit Assessment of Traffic Flow Management Research & Development
 - Life-Cycle Cost/Benefit Assessment of Multi-Center Traffic Management Advisor
 - Cost Estimation of Integrated Vehicle Health Management
 - Life-Cycle Cost/Benefit Assessment of active Final Approach Spacing Tool
 - Life-Cycle Cost/Benefit Assessment of Expedite Departure Path
 - Landing Speed Variations at DFW
 - Initial Life-Cycle Cost/Benefit Assessment of NASA's Decision Support Tools
 - Surface Traffic Monitor Module Verification in Simulation
 - Advanced Composite Technology Wing Program Long Term Durability Testing