

SPONSORED RESEARCH

Hanif D. Sherali (Virginia Polytechnic Institute & State University)

- 7/80-12/80: **Co-Principal Investigator (with A. L. Soyster), Mining and Mineral Resources Research Institute, U.S. Department of the Interior**
- "The Influence of Market Structure on the Supply and Demand of Copper."
- 6/81-10/81: **Co-Principal Investigator (with W. Hibbard and A. L. Soyster), Bureau of Mines, U.S. Department of the Interior**
- "Some Further Scenario Studies on the MIDAS World Copper Model."
- 7/81-7/82: **Principal Investigator, Mining and Mineral Resources Research Institute, U.S. Department of the Interior (Co-P. I. for Summer Session I, 1981: A. L. Soyster)**
- "A Disaggregated Copper Demand Model for the MIDAS Forecasting System."
- 9/81-9/83: **Principal Investigator, National Science Foundation**
- "The Mixed Integer Bilinear Programming Problem with Extensions to Zero-One Quadratic Programs."
- 9/83-9/84: **Co-Principal Investigator (with T. Glickman), Association of American Railroads**
- "Technical Support to the AAR Freight Car Management Program."
- 7/84-7/85: **Principal Investigator, Mining and Mineral Resources Research Institute, U.S. Department of the Interior**
- "Network of Oligopolies with Application to the Copper Industry."
- 1/85-1/86: **Co-Principal Investigator (with T. Glickman), Association of American Railroads**
- "Continued Technical Support to the AAR Freight Car Management Program."
- 1/85-1/86: **Co-Principal Investigator (with S. C. Sarin), Virginia Center for Innovative Technology, Institute for Computer-Aided Engineering**
- "Application of Integer Programming Methods to Computer Integrated Manufacturing."
- 7/85-7/86: **Principal Investigator, Mining and Mineral Resources Research Institute, U.S. Department of the Interior**
- "Equilibrium in Networks with Application to the Copper Industry."

- 9/85-1/87: **Co-Principal Investigator (with S. C. Sarin), Burroughs Corporation/Standard Register**
- "Mathematical Programming and Artificial Intelligence Approaches to a Two-Stage Production Process."
- 1/86-1/87: **Co-Principal Investigator (with S. C. Sarin), Virginia Center for Innovative Technology, Institute for Computer-Aided Engineering and the Institute for Information Technology**
- "Mathematical Programming and Artificial Intelligence Approaches to a Two-Stage Production Process."
- 1/86-1/87: **Co-Principal Investigator (with T. Glickman), Association of American Railroads**
- "The Design and Implementation of Primal-Dual Subgradient Algorithms for the AAR Empty Freight Car Management Problems."
- 1/87-12/87: **Principal Investigator, Association of American Railroads**
- "The Design and Implementation of Primal-Dual Conjugate Subgradient Algorithms for the AAR Empty Freight Car Management Program - II."
- 6/88-5/90: **Co-Principal Investigator (with S. Kim), Korea Research Foundation**
- "Optimal Route of a Moving Facility." (Equipment and student support without overheads.)
- 3/89-8/92: **Principal Investigator, National Science Foundation**
- "A New Reformulation Technique for Tightening Relaxations of Some Combinatorial Optimization Problems With Application to the General Linear Complementarity Problem."
- 3/90-3/91: **Principal Investigator, Naval Surface Warfare Center**
- "Models and Algorithms for Operating Illuminators in Surface to Air Defense Strategies."
- 7/90-7/91: **Principal Investigator, Mining and Minerals Resources Research Institute, U.S. Department of the Interior/Bureau of Mines**
- "Model Development, Testing, and Computer Implementation for a Coal Blending and Distribution Problem."
- 5/91-8/92: **Principal Investigator, Naval Surface Warfare Center**
- "Models and Algorithms for Passive Homing Device Operations in Battle Group Anti-Air Warfare Scenarios."

- 7/91-7/92: **Principal Investigator, Mining and Minerals Resources Research Institute, U.S. Department of the Interior/Bureau of Mines**
- "Mathematical Modeling and Analysis of a Planning and Operational Decision Problem for Coal Companies Under the 1990 Clean Air Act."
- 1/92 - 8/94: **Co-Principal Investigator (with T. S. Rappaport and C. W. Bostian, EE Dept.), Defense Advanced Research Projects Agency (DARPA), Information Science and Technology Office**
- "Radio Propagation Prediction Techniques and Computer-Aided Channel Modeling for Embedded Wireless Microsystems."
- 10/91-10/92: **Co-Principal Investigator (with S. Kim), University of Korea and the Korean Research Foundation**
- "Location-Allocation Problems." (Equipment and student support without overheads.)
- 9/92-12/92: **Principal Investigator, Association of American Railroads**
- "Dynamic Time-Space Strategic Model and Analysis for Multi-Level Fleet Management."
- 9/92-2/96: **Principal Investigator, National Science Foundation**
- "A Reformulation-Linearization Technique with Applications to Production, Location, Distribution, and Design Problems."
- 9/93-5/94: **Principal Investigator, Association of American Railroads**
- "Tactical Models and Algorithmic Engines for Multilevel Fleet Management Problems."
- 1/94-10/97: **Co-Principal Investigator (with K. Ozbay, CE Dept., as part of an IVHS Research Centers of Excellence Grant awarded to a joint proposal submitted through the Transportation Research Center, VPI&SU), U.S. Department of Transportation and the Federal Highway Administration**
- "Dynamic Network Optimization."
- 9/95-9/96: **Co-Principal Investigator (with S. H. Jacobson), National Science Foundation**
- "Engineering Research Equipment: Workstations for Computational Studies in Large-Scale Simulation and Mathematical Programming Research."
- 12/95-5/99: **Principal Investigator, National Science Foundation**
- "Tight Polyhedral Relaxations for Discrete and Continuous Nonconvex Problems with Applications to Production, Distribution, and Design Problems."

- 9/96-9/97: **Co-Principal Investigator (with P. Kachroo, CE Department), Federal Highway Administration**
“Incident Response: Crew Scheduling and Re-Routing of HAZMAT Carriers.”
- 9/96-9/99: **Co-Principal Investigator (with A. A. Trani, CE Department, and researchers from MIT, University of California at Berkeley, and the University of Maryland), Federal Aviation Administration**
“NEXTOR: FAA National Center of Excellence in Aviation Operations Research.”
- 10/96-10/97: **Co-Principal Investigator (with A. A. Trani, CE Department), Federal Aviation Administration**
“Space Transportation Impacts on the U.S. Air Traffic Control System.”
- 10/96-10/97: **Co-Principal Investigator (with A. A. Trani, CE Department), Federal Aviation Administration**
“Maintenance and Enhancement of SIMMOD — The Airfield and Airspace Simulation Model.”
- 9/97-9/99: **Co-Principal Investigator (with A. A. Trani, CE Department), Federal Aviation Administration**
“Analysis of Aircraft Separation and Collision Risk Modeling.”
- 9/97-9/98: **Co-Principal Investigator (with A. A. Trani, CE Department), Federal Aviation Administration**
“Integration of Reusable Launch Vehicles in the Air Traffic Control System of the Future.”
- 1/98-1/99: **Co-Principal Investigator (with J. E. Kobza, ISE Department, and A. A. Trani, CE Department), Federal Aviation Administration**
“Fundamental Research in Air Traffic Management.”
- 9/97-3/01: **Co-Principal Investigator (with G. V. Loganathan, CE Department), U.S. Geological Survey**
“An Optimal Rehabilitation Design Model for a Reliable Water Distribution Network System.”
- 6/98-9/99: **Co-Principal Investigator (with J. E. Kobza, ISE Department, and A. A. Trani, CE Department), Federal Aviation Administration**
“Investigation on the Integration of Airfield and Airspace Simulation Models through an Open Systems Architecture.”

- 10/98-4/99: **Co-Principal Investigator (with A. A. Trani, CE Department), Federal Aviation Administration**
“Integration of Reusable Launch Vehicles into Air Traffic Management: Phase III.”
- 9/98-9/01: **Principal Investigator, National Science Foundation**
“Discrete and Continuous Nonconvex Optimization with Applications to Production, Distribution, and Design Problems.”
- 6/99-12/99: **Co-Principal Investigator (with A. A. Trani, CEE Department), Federal Aviation Administration**
“Fundamental Research in Air Traffic Management.”
- 5/00-5/01: **Co-Principal Investigator (with A. A. Trani, CEE Department), Federal Aviation Administration**
“Air Traffic Management Model Development and Integration in a Collaborative Decision Making Environment.”
- 9/00-9/02: **Co-Principal Investigator (with A. A. Trani, CEE Department), National Science Foundation**
“Air-Traffic Management and Control Issues in the Terminal Area and in the Enroute National Airspace.”
- 5/01-10/03: **Co-Principal Investigator (with H. Rakha, CEE Department, and B. Smith, University of Virginia), Virginia Department of Transportation**
“VDOT Surveillance Needs.”
- 9/01-9/06: **Principal Investigator, National Science Foundation**
“A Unifying Approach for Discrete and Continuous Nonconvex Optimization with Applications to Operational and Design Problems.”
- 1/01-12/03: **Co-Principal Investigator (with A. A. Trani, CEE Department), Federal Aviation Administration**
“Collaborative Decision Making and Free Flight Phases 1 and 2.”
- 9/01-9/02: **Co-Principal Investigator (with A. A. Trani, CEE Department), Federal Aviation Administration**
“Grant Proposal for FAA Training and Educational Initiatives.”
- 10/02-8/03: **Co-Principal Investigator (with D. Teodorovic, CEE Department), Federal Aviation Administration**
“NEXTOR Conference-FAA Training and Educational Initiatives.”

- 6/02-6/03: **Co-Principal Investigator (with A. A. Trani, CEE Department), Federal Aviation Administration**
“Collaborative Decision Making and Free Flight Phase II.”
- 7/02-8/03: **Co-Principal Investigator (with A. A. Trani and D. Teodorovic, CEE Department), Federal Aviation Administration**
“Strategic Decision Support System: Phase II.”
- 9/03-9/07 **Co-Principal Investigator (with E. Bish, ISE Department), National Science Foundation**
“Demand Driven Fleet Management Analysis, Models, and Algorithms for the Airline Industry.”
- 9/03-6/04: **Co-Principal Investigator (with A. A. Trani, CEE Department), Federal Aviation Administration**
“Air Traffic Flow Management, Collaborative Decision Making, and Route Selection in the Presence of Weather Uncertainty.”
- 9/03-8/04: **Co-Principal Investigator (with A. A. Trani and D. Teodorovic, CEE Department), Federal Aviation Administration**
“FAA Training and Educational Initiatives.”
- 12/04-12/06 **Co-Principal Investigator (with D. Gao, Mathematics Department), National Science Foundation**
“International Conference on Complementarity, Duality, and Global Optimization.”
- 4/04-6/05: **Co-Principal Investigator (with A. A. Trani, CEE Department), Federal Aviation Administration**
“Collaborative Decision Making and Air Traffic Flow Management under Uncertainties due to Weather, Demand, and Capacities.”
- 4/04-12/05: **Co-Principal Investigator (with A. A. Trani and D. Teodorovic, CEE Department), Federal Aviation Administration**
“National Airspace System Strategic Decision Support Model: Phase III.”
- 9/06-9/09: **Principal Investigator, National Science Foundation**
“Enhancing the Solvability of Discrete and Continuous Nonconvex Programs with Applications to Production, Design, and Operational Problems.”

- 10/06-10/10: **Principal Investigator (as part of project with MIT (A. Odoni and D. Bertsimas), UC Berkeley (M. Hansen), University of Maryland (M. Ball and D. Lovell), and Metron Aviation (B. Hoffman)), National Aeronautics and Space Administration (NASA)**
“Dynamic, Stochastic Models for Managing Air Traffic Flows.”
- 7/08-7/12: **Principal Investigator, National Science Foundation**
“Integrated Operations Planning Models and Algorithms for the Airline Industry.”
- 5/09-5/12: **Co-Principal Investigator (with S. C. Sarin), National Science Foundation**
“Primary Pharmaceutical Manufacturing Scheduling and Related Problems.”
- 9/09-9/12: **Co-Principal Investigator (with Y. T. Hou, ECE Department), National Science Foundation**
“Cross-Layer Optimization for Video Transport in Wireless Ad Hoc Networks.”
- 4/10-4/11: **Co-Principal Investigator (with Y. T. Hou, ECE Department), Naval Research Laboratory**
“Capacity Scaling Law for Cognitive Radio Network.”
- 5/10-5/13: **Principal Investigator, National Science Foundation (Collaborative Research with W. P. Adams, Clemson University)**
“Collaborative Research: Reformulation-Linearization Technique for Discrete and Continuous Nonconvex Optimization with Applications.”
- 7/11-7/14: **Co-Principal Investigator (with Y. T. Hou and S. F. Midkiff, ECE Department), National Science Foundation**
“NeTS-Medium: Throughput Optimization for Cooperative Relaying in Wireless Networks.”