CALL FOR PARTICIPATION

Workshop on Port Security/Safety, Inspection, Risk Analysis and Modeling

Workshop Website: http://dimacs.rutgers.edu/Workshops/PortSecurity

November 17-18, 2008, CoRE Building, Rutgers University, Piscataway, NJ

Hosts	Supported by
Rutgers, The State University of New Jersey	National Science Foundation (NSF)
Center for Discrete Mathematics and Theoretical Computer Science (DIMACS)	Office of Naval Research (ONR)
Center for Advanced Infrastructure and Transportation (CAIT)	Department of Homeland Security (DHS)
CAIT - DIMACS Laboratory for Port Security (LPS)	
Center for Dynamic Data Analysis (DyDAn)	

Workshop Description

Seaports are the gateway to our nation's economy. Freely flowing international trade, carried predominantly by ocean-going vessels, has been a major contributor to the global prosperity experienced in the second-half of the 20th century. In the U.S. and many countries worldwide, maritime traffic in ports and waterways is a critical component of national supply chains and the backbone of many economies. However, the proximity of major seaports to urban centers and the volume and diversity of seaport activities render them vulnerable targets, where even small incidents could have crippling economic effects. Increasingly important security operations must strike a balance between providing security and impeding the movement of cargo with the attendant economic costs, as any stoppage or appreciable slow-down in port operations impacts numerous supply chains, and extended stoppages necessitate diverting vessels to other ports, as was the case in the 2003 strike of longshoremen in the port complex of LA/LB.

The need to maintain efficient port operation sometimes conflicts with worldwide concerns about terrorism, drug smuggling and crime and with the resulting port security measures. This workshop will explore a wide variety of topics at the interface of port security and port operations, with an emphasis on technical tools using mathematical modeling, risk analysis, and new algorithmic approaches to inspection of cargo, vehicles, and people entering the ports, and on port operations. Such models can assist in analyzing the effectiveness of interdiction measures and the disruptive impact of high-consequence events in and around port complexes, as well as assessing the effectiveness of strategies to mitigate and recover from such events. Security considerations tend to impede maritime trade and increase its overall costs. Seaports typically house major infrastructure such as container terminals, oil refineries, petrochemical facilities, bridges and passenger terminals, all of which are potential targets and vulnerable to high-consequence terrorist attacks. Furthermore, from a safety stand point, seaports and waterways experience major accidents such as collision, grounding and ramming, among others, ending up with spills and sunken vessels resulting in port closures. Various agencies, such as the U.S. Coast Guard, Vessel Traffic Services (VTS), Maritime Exchanges and pilot associations, establish and maintain a set of rules for vessel movements and facility operations in ports and waterways in which risk assessment and management have played an important role. This workshop will engage practitioners responsible for port security and port operations as well as researchers applying tools from the mathematical sciences to balance the conflicting needs of port security and unimpeded port operations.

Inspection of cargo moving through ports is a major line of defense against terrorism and the introduction of contraband materials of all kinds. Because of the desire to inspect a larger and larger percentage of containers going through ports, new methods and algorithms are needed to minimize the cost of inspection, delays to port operations, and inspection errors. The workshop will explore strategies for inspecting containers entering ports that seek to balance costs of inspection with detection rate to achieve the best possible detection rate given practical limitations. Of particular emphasis are new methods to inspect for nuclear materials and other weapons of mass destruction that might enter the country through its ports but may be difficult to distinguish from other benign cargo.

Risk analysis and risk management have been key tools in helping policy makers make strategic and tactical decisions, such as allocating resources and taking actions under uncertainty. Developing better models and approaches for effective and improved risk analysis is of strategic interest to port authorities, terminal operators and industrial and government agencies. In addition to their use in analyzing risk, models and simulation are tools that are increasingly used to understand port operations and to develop new methods for container inspection. The workshop will explore the use of such models in all aspects of safety, security, and inspection at ports.

Areas of Interest

Workshop topics will encompass a wide variety of port security issues and the mathematical tools being applied to address them. Themes of particular interest are: port and waterway maritime traffic analysis and modeling, cargo screening and inspection algorithms, nuclear detection protocols, analysis of container delays and costs due to cargo inspection, cost and economic trade-off of port security, risk analysis algorithms and risk management, allocation of funds for port security infrastructure, effectiveness of the Container Security Initiative (CSI) and Customs-Trade Partnership Against Terrorism (C-TPAT) cargo inspection and monitoring initiatives, vessel scheduling and sequencing in waterways and canals, analysis of vessel movements and delays in port anchorages, modeling of vessel arrivals at ports and waterways, accident probability modeling, analysis for port security and port safety assessments, port security value tree modeling, decision analysis and multi-objective trade-off models in port security analysis.

Organizing Committee

Tayfur Altiok, Rutgers University	**Benjamin Melamed**, Rutgers University	**Fred Roberts**, Rutgers University

How to Participate

The workshop is open to all. Those interested in attending are invited to register at the workshop website provided above. Talks will be mainly by invitation, but there will be space for a limited number of contributed talks. Those who would like to contribute a talk for consideration by the organizing committee are invited to submit a title and abstract by October 15, 2008. Many of the topics of this workshop are within the scope of a Special Issue of the journal *Annals of Operations Research* devoted to the topic of Port Security/Safety, Inspection, Risk Analysis and Modeling that is in preparation.