Afstudeerstage “Optimization Air Cargo Logistics”

**Company:** Air Cargo Netherlands (ACN) and Centrum Wiskunde & Informatica (CWI) Amsterdam  
**Supervisors:** Prof. dr. Rob van der Mei, Dr. Elenna Dugundji and Drs. Thierry Huizinga  
**Location:** ACN, Flamingoweg 13, Schiphol, and CWI, Science Park 123, Amsterdam  
**Timeframe:** Spring 2017 (6 months)

**Background**
The supply chain of air cargo is a complex interplay between airlines, ground handlers, forwarders and shipping agents. A recent study by TNO has shown that large cost savings, CO2 emission and reduction of waiting times can be obtained by a better coordination between ground handlers, forwarders and shipping agents. The celebrated Milkrun-project (http://www.acn.nl/milkrun/) has shown the huge potential cost reduction by coordinated planning for air side to land side cargo. Extensive discussions with representatives of ACN and Amsterdam Airport Schiphol (AAS) have led to the identification of the following list of key challenges in the air cargo domain:

1. Investigate the potential for route optimization for reducing time, cost and CO2 emission;  
2. Explore the possibilities for gaining efficiency and cost reduction by combining import and export;  
3. Delivery of cargo to the hinterland directly by the handler, bypassing intermediate parties in the supply chain;  
4. Enhancing efficiency by exchange of shipment of goods between handlers;  
5. Investigate various methods for exchange of goods (e.g., truck, dolly or separate lanes).

For ACN, as an industry association, this project is important for its members. By efficient use of trucks, and a smoother inflow and delivery of freight, tremendous cost savings can be realized in for example (1) the number of truck movements, (2) higher throughput in the warehouse (possibly leading to a higher handling capacity), and (3) less bursty delivery of freight, which makes personnel planning much easier and less costly.

**Collaboration Air Cargo Netherlands and Centrum Wiskunde & Informatica**
The internship is part of a research collaboration between Air Cargo Netherlands (ACN) and the National Research Institute for Mathematics and Computer Science in the Netherlands (CWI). You will receive an internship contract with ACN, but will also work for two days per week at CWI. You will be supervised by Thierry Huizinga (ACN) and Prof. Rob van der Mei and Dr. Elenna Dugundji (CWI and VU). At the CWI there is much knowledge available in the area of planning and prediction models for logistics.

**Requirements**
1. The student should have a background in mathematical modeling and statistical analysis.  
2. The student should be comfortable with computer programming and comfortable with exploring datasets in order to analyze and model historical trends.  
3. The student should be able to take initiative and work independently.  
4. The student should enjoy applying mathematical knowledge to real-world practical problems.

**Compensation**
The student will receive an internship contract via ACN and will receive standard internship compensation per month.  
For more details about the assignment, please mail or phone to Dr. Elenna Dugundji (dugundji@cwi.nl, 0651459117)