The IT University of Copenhagen

PhD Scholarship in Liner Service Network Design

The IT University of Copenhagen (ITU) invites applications for a 3-year PhD Scholarship within the field of Liner Service Network Design.

Project Description

Containerized shipping is an eco-friendly mode of transportation. Liner shipping companies offer scheduled services by sailing container vessels on fixed routes between sea terminals in a way much similar to how buses transport people in cities. A good route network should ensure short transportation times, a high utilization of the vessels and low energy consumption. It is very challenging for route managers to design a good service network due to the high combinatorial complexity of choosing lines that cover global demand and account for vessel capacities, transshipments, transit times, and backhaul transportation.

The successful candidate will model and implement optimization algorithms for route net design. Due to the size and complexity of the problem, it will be necessary to use the latest optimization methods including advanced heuristics and decomposition techniques. The outcome of the project is prototype algorithms, which will be tested on real data, and published in scientific journals.

Collaboration with Maersk Line and the Technical University of Denmark

The PhD scholarship is supported by The Danish Council for Strategic Research under the ENERPLAN project which is a close collaboration between Maersk Line, The Technical University of Denmark (DTU), and the IT University. Maersk Line is the world's largest liner shipping company and has head quarters in Copenhagen. The main place of work will be ITU, but the PhD student will also collaborate with researchers at DTU and is offered office space at Maersk Line as well to develop accurate domain models and test algorithms.

Qualification Requirements

Candidates should have a Master's degree in computer science, engineering or a similar degree. The successful candidate:

- Possesses an advanced degree in algorithms/optimization or operations research.
- Has experience in developing algorithms for hard combinatorial optimization problems.
- Has good programming skills.
- Has good project management skills.
- Is fluent in English, spoken as well as written.

Application Procedure

Please apply to ITU's general call for PhD scholarships and refer to the ENERPLAN project in your application (www1.itu.dk/sw487.asp). The application deadline is October 7th, 2009 at 12 noon local time. The current salary level is 4850 USD per month. Further information about this scholarship may be obtained from Associate Professor Rune Møller Jensen, email rmj@itu.dk , phone +45 3114 7533.

The IT University of Copenhagen (ITU) was established in 1999 and is the only Danish university focusing solely on information technology.

The IT University constantly directs its efforts to ensure the quality and relevance of its research and educational programmes.

The IT University strives to deliver top quality research and education within a wide range of information technology subjects; from design and game development to business and science.

Approximately 1,500 students are enrolled in the university and it is currently producing the largest fraction of computer science candidates in Denmark.

During the last couple of years, the IT University has expanded significantly and has succeeded to attract internationally leading researchers and PhD candidates.

The IT University has collaborated with A.P. Moller - Maersk since 2005 within a range of areas including stowage planning, network optimization, and data mining.

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