

OPERATIONS RESEARCH & COMPUTER SCIENCE INTERNSHIP

Keywords: logistics, vehicle routing, electric vehicles

PROJECT MOTIVATION & GOALS

The rapid rise in oil prices, the increasing awareness of environmental issues and the various anti-pollution measures adopted by many countries lead more and more companies to use electric vehicles (EVs). In particular, service companies such as gas and electricity suppliers, telecommunication companies, and elevator or printer maintenance companies are implementing EVs for their technician routes. However, the massive adoption of EVs is still hampered by technical constraints such as low driving ranges and long battery charging times. Needless to say, adding these new constraints to the “classical” features of technician routing problems (e.g., skills, work schedules) results in hard optimization problems for which new solution techniques are needed. The objectives of this research internship are twofold: i) designing, implementing, and testing performing techniques to solve a technician routing problem with electric vehicles faced by the French electricity company (EDF), and ii) use those methods to conduct a study assessing the impact of the transition to an all-electric fleet in terms of cost, travel time, and organization. The methods developed will be tested on data provided by EDF.

CONTEXT

The project is part of « Technician routing optimization with electric vehicles », a 1-year project funded by the Gaspard Monge program for optimization and operational research (<http://www.fondation-hadamard.fr/pgmo.php>). The intern will be based at Université d'Angers (<http://www.univ-angers.fr/>) and be part of team SDO at the LARIS Laboratory (<http://laris.univ-angers.fr>). The internship will be supervised by: Dr. Jorge E. Mendoza from Polytech Tours (<http://www.jorge-mendoza.com>), and Pr. Christelle Guéret from Université d'Angers (<http://perso-laris.univ-angers.fr/~gueret/>).

The duration of the internship is six months. Although the start date is flexible, beginning during February 2016 is preferable. A successful internship may lead to scholarship funds for future doctoral study. The net salary is around 500€/month.

DESIRED QUALIFICATIONS

The ideal applicant possesses strong computer programming skills (preferably in Java); is familiar with operations research models and methods including mathematical programming, and metaheuristics; and is able to communicate comfortably in French or English. Such applicants may be master's students in operations research, management science, industrial engineering, or applied mathematics programs.

CONTACT

Interested applicants should contact Pr. Christelle Guéret (christelle.gueret@univ-angers.fr) and Dr. Jorge E. Mendoza (jorge.mendoza@univ-tours.fr) attaching to the email: an up-to-date CV, a letter of motivation, transcripts for the last two academic years, and the name and contact information of 2 professional references.