

I. IDENTIFICATION DATA

Thesis title:	Single-Vehicle DARP Optimization for Ridesharing Using Operational Research Methods
Author's name:	Pavel Martinec
Type of thesis :	bachelor
Faculty/Institute:	Faculty of Electrical Engineering (FEE)
Department:	Cybernetics
Thesis reviewer:	Leah Chrestien
Reviewer's department:	Computer Science

II. EVALUATION OF INDIVIDUAL CRITERIA

Assignment	challenging
<i>How demanding was the assigned project?</i>	
The student has successfully implemented a novel approach that speeds up the calculation of optimal solutions for Single Vehicle Dial-a-ride problems. The student has experimented with many variations of the main algorithm which has resulted in lengthy, time consuming and expensive experiments. I consider the thesis challenging.	

Fulfilment of assignment	fulfilled
<i>How well does the thesis fulfil the assigned task? Have the primary goals been achieved? Which assigned tasks have been incompletely covered, and which parts of the thesis are overextended? Justify your answer.</i>	
The student has successfully completed the stated requirements for the Bachelor thesis.	

Methodology	correct
<i>Comment on the correctness of the approach and/or the solution methods.</i>	
The student is familiar with the state-of-the-art in mobility-on-demand routing problems and has demonstrated a thorough knowledge of Dial-a-ride problems (DARP) and Single vehicle DARP (SVDARP) algorithms. The student has introduced the most commonly used backtracking algorithm for SVDARP and has implemented variations of the 'three index formulation' algorithm in order to improve upon the existing method in terms of speed and efficiency.	

Technical level	A - excellent.
<i>Is the thesis technically sound? How well did the student employ expertise in the field of his/her field of study? Does the student explain clearly what he/she has done?</i>	
The student has laid out precise and strong foundations for the implemented algorithm aimed at improving the existing work. It is clear that student has successfully modeled and executed the SVDARP algorithm by itself and alongside a prior VGA method. On comparing it to the baseline, the stated results demonstrate a better performance for more complex scenarios.	

Formal and language level, scope of thesis	B - very good.
<i>Are formalisms and notations used properly? Is the thesis organized in a logical way? Is the thesis sufficiently extensive? Is the thesis well-presented? Is the language clear and understandable? Is the English satisfactory?</i>	
The formalisms are extensive, the notations are clear and easy to understand. Besides a couple of typing errors, the thesis is well-written and follows the protocols of Scientific Writing.	

Selection of sources, citation correctness

A - excellent.

Does the thesis make adequate reference to earlier work on the topic? Was the selection of sources adequate? Is the student's original work clearly distinguished from earlier work in the field? Do the bibliographic citations meet the standards?

The citations are carefully selected.

Additional commentary and evaluation (optional)

Comment on the overall quality of the thesis, its novelty and its impact on the field, its strengths and weaknesses, the utility of the solution that is presented, the theoretical/formal level, the student's skillfulness, etc.

The student's contribution to the Mobility-on-demand transportation problem is novel, promising and the need of the hour. An extended comparison to similar problems using AI simulators could be a direction for future work.

III. OVERALL EVALUATION, QUESTIONS FOR THE PRESENTATION AND DEFENSE OF THE THESIS, SUGGESTED GRADE

Summarize your opinion on the thesis and explain your final grading. Pose questions that should be answered during the presentation and defense of the student's work.

The thesis is concise, well presented and conducts a good survey on the existing literature. The results are promising and has the potential to be extended for future work.

The grade that I award for the thesis is

Date:

Signature: *Leah Chrestien*