

I. IDENTIFICATION DATA

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| Thesis title: | HPC technologies for simulation of diffraction of electromagnetic waves by spherical obstacles |
| Author's name: | Anastasiia Puzankova |
| Type of thesis : | master |
| Faculty/Institute: | Faculty of Electrical Engineering (FEE) |
| Department: | Dept. of Computer Science |
| Thesis reviewer: | doc. Ing. Miroslav Bures, Ph.D. |
| Reviewer's department: | Dept. of Computer Science |

II. EVALUATION OF INDIVIDUAL CRITERIA

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| Assignment <i>How demanding was the assigned project?</i> | ordinarily challenging |
| The goal of the thesis is the implementation of a given set of formulas as high-performance computing (HPC) solution. | |

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| Fulfilment of assignment <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> | fulfilled with major objections |
| <p>In the first part of the thesis, the student defines the problem and presents equations that have to be computed by an HPC solution, which, according to the thesis assignment, shall be the core part of the thesis. I appreciate the problem explanation and consider it clearly structured.</p> <p>However, from this part on, I have two major objections to the presented solution.</p> <p>First, description of the design, implementation and tests of the Maxwell equation solver is very brief, namely ten pages including the tests and experiments, approximately three of which are listings of source code of the created program. The length of the created program itself is quite short. This itself is not necessarily an issue, as even compact source code can serve the purpose well. However, briefness of description of the created software part in the thesis is unusual.</p> <p>The next issue is almost absent documentation of software engineering aspects of the work which have to be present in the thesis, defended in the Software engineering branch of the Open Informatics study program. These requirements were clearly communicated to the students of the double degree program and were expected to be met.</p> <p>Second, my concern is raised about the understanding of high-performance computing in the thesis. Actually, the created program is run in eight parallel threads on a standard economic workstation (Intel i5 core with 8 GB ram). However, in a very loose understanding of HPC concept, four cores of the standard workstation processor can be interpreted as a basic HPC setup, so I decided to take this viewpoint.</p> <p>Hence, formally, the thesis assignment is fulfilled.</p> | |

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| Technical level <i>Is the thesis technically sound? How well did the student employ expertise in his/her field of study? Does the student explain clearly what he/she has done?</i> | E - sufficient. |
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THESIS SUPERVISOR'S REPORT

Problem definition is well presented and structured. I have commented on the briefness of the documentation of the remainder of the thesis already above.

Formal level and language level, scope of thesis

D - satisfactory.

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?

My objections to the extent of the thesis are already described in the section above. Regarding the formal level of the text, I consider typographical level as adequate. English level is adequate; I have noticed only small typos or mistakes.

Selection of sources, citation correctness

C - good.

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?

I consider the extent of used resources adequate. During the reading of the text, I have not noticed a violation of citation ethics. Weblinks might be placed as footnotes below the text or, when used as proper references, access date shall be given in the reference. I would discourage using links to Wikipedia in a master thesis.

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

Given the facts above, the grade that I award for the thesis is **E - sufficient**.

Date: **22.8.2020**

Signature: