1. Assignment of the thesis.

The thesis involved the development of a scheduling framework using Evolutionary Algorithms and Constructive heuristics. The thesis was divided into three parts:

1. The first part involved the development of chaos driven Discrete Artificial Bee Algorithm, where different chaotic maps were embedded to improve the algorithm. This work was published in IEEE WCCI 2014 and Swarm and Evolutionary Computation Journal.

2. The second part was the acceleration of constructive heuristics of NEH and 2-Opt local search using CUDA platform. This work was published in IEEE SSCI 2014.

3. The final aspect was the development of the Self Adaptive Artificial Bee Algorithm using Complex network centralities. This work was published in IEEE CEC 2015.

In conjunction with her thesis, the student gave an invited lecture on “CUDA Accelerated Heuristics” and completed two separate research attachments at the “Laboratory for Computer Science and Production Logistics, Innovation and Competence Centre for Production Logistics and Factory Planning, University of Applied Sciences Regensburg, Germany” in order to obtain more knowledge in scheduling and manufacturing systems. In addition, the student has cooperated with two international professors; Prof. Hermann and Prof. Onwubolu on different projects in manufacturing and scheduling.

In summary the student has the following publications out of her thesis:


The complexity of the thesis was quite high due to three unique aspects being investigated. All three aspects of the thesis has been published and thereby reviewed by experts in the respective fields. Additionally, the development of the complex network analysis of ABC algorithm has been accepted to be presented as part of a tutorial on Complex Networks at IEEE CEC 2015.
All stated assignments of the thesis has been met and exceeded by the student.

2. **Student’s activity during the project completing.**
   The student worked independently on her thesis, with regular consultation. She was extremely diligent in meeting strict deadlines for coding, running experimentations, writing, submitting and reviewing papers.

3. **Student’s activity during the process of completion.**
   The thesis was completed well in advance of the due date. The student was very focused on communicating as much of the results to conferences and journals and getting feedback through the review process in order to improve her work.

4. **Overall evaluation of the thesis**
   The thesis was successfully completed. In my opinion it met and exceeded all aims and objectives and has introduced new information to the respective fields of research. All results have been communicated with the research community and accepted. The work has been presented internationally at the top conferences in Computational Intelligence and also published in a journal article.

5. **Evaluation of the new findings contribution.**
   This thesis introduces new finding in the fields of computational intelligence and scheduling. This work will lead to more powerful algorithms, in terms of algorithm design, measurement and evaluation, which in turn will solve complex manufacturing and scheduling problems. This is of particular interest to manufacturing firms.

6. **Utilization and selection of information sources.**
   The student has done a comprehensive state-of-art with 131 references to all the important literature, which is both concise and clear.

7. **Summary evaluation.**
   In my opinion the student has done an exceptional work and has made significant contribution to the field of computational intelligence and scheduling. The number of publications; 5 conferences and 1 impacted journal article pertaining to her thesis validates this.

8. **Question for the defense of the thesis.**

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**Overall classification:** excellent

Ostrava, 12.05.2015

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doc. MSc. Donald David Davendra, Ph.D.