Information on Doctoral thesis of Fellows Nguyen Huu Mui

1. Full name: Nguyen Huu Mui

2. Sex: Male

3. Date of birth: September 19th 1955

4. Place of birth: Hanoi

5. Admission decision number: 345/SĐH December 23rd 2005 of the President of VNU.

6. Changes in academic process: Pause the studying for 12 months from December 1st 2006 to December 1st 2007, Decision No. 2378/SĐH of the President of VNU; Extend learning time for 12 months, Decision No. 1273/QĐ-ĐT of the Rector of the University of Engineering and Technology.

7. Official thesis title: The algorithm and scheduling problems.

8. Major: Computer Science

9. Code: 62 48 01 01

10. Supervisors:

> 1. Associate Professor - Ph.D. Vu Dinh Hoa – Key Guide
>
> 2. Associate Professor – Dr. Hoang Xuan Huan – Movie Guide

11. Summary of the new findings of the thesis:

1. The thesis analyzed, evaluated and compared with the approaches that were applied for the job shop scheduling problem. On that basis, the thesis proposed a number of research directions to solve this problem.

2. The thesis proposed a new hybrid algorithm that combines genetic algorithm with other search techniques for the job shop scheduling problem. This proposed method has been tested on the benchmark problems and compare with the results of the previous solutions to prove its superiority.

3. The thesis proposed a parallel hybrid genetic algorithm for the job shop problem. The algorithm has been installed and run the test; the results are very good and shorten the execution time for the same set of parameters and data into the sequential algorithm.

4. The thesis proved the convergence of the new hybrid genetic algorithm for the job shop scheduling problem.

12. Practical applicability, if any:

1. The thesis has been used as teaching material for specialized elective courses in undergraduate information technology in the Department of Information Technology, University of Hanoi Teachers.

2. The thesis can be used as a reference for undergraduates and graduate students of information technology as a subject of genetic algorithms and the application of optimization problems.

3. If the thesis is invested in financial and human resources, it can be applied for solving practical problems in the planning and optimization.

13. Further research directions, if any:

Although there are many solutions for job shop scheduling problem, no solution can ensure that its implementation has been underutilized and solved perfectly this problem. To overcome the existing barriers to the solution of the JSP, the rigorous experimental designs and thorough analysis of the hybrid approach are essential to create powerful methods for JSP.

Another problem of the scheduling study is generally simpler than the real-world problem. Practically, the problem may be more binding complicated, the objective function is more flexible and has more dynamic features. It shows that the need to expand the approaches applied for the JSP in order to combine with the real bindings.

This is the problem posed for further research on solutions to the scheduling problem.

14. Thesis-related publications:

1. Nguyen Huu Mui, Vu Dinh Hoa (2009), "Solving the permutation flow shop scheduling problem by genetic algorithms", *Journal of Science of HNUE* Vol. 54 (1), pp. 40-45.

2. Nguyen Huu Mui, Vu Dinh Hoa (2009), "Solving the flow shop scheduling problem by genetic algorithms", *Journal of Science of HNUE* Vol. 54 (6), pp. 35-41.

3. Nguyen Huu Mui, Vu Dinh Hoa (2010), "Active schedules and a new hybrid genetic algorithm for the job shop scheduling problem", *VNU Journal of Science, Mathematics - Physics* Vol. 26 (4), pp. 213-221.

4. Nguyen Huu Mui, Vu Dinh Hoa (2010), "Solving the job shop scheduling problem by genetic algorithm", *Addendum Proceedings IEEE RIVF 2010*, pp. 29-32.

5. Nguyen Huu Mui, Vu Dinh Hoa (2011), "Solving job shop scheduling problem with genetic algorithms", *Proceedings of the 8th National Conference*, pp. 71-82.

6. Nguyen Huu Mui, Vu Dinh Hoa (2011), "A new hybrid genetic algorithm for job scheduling problem", *Conference Proceedings of National Science and Technology 5th*, pp. 239-249.

7. Nguyen Huu Mui, Vu Dinh Hoa (2012), "An effective genetic algorithm for job shop scheduling problem ", *Journal of Science and Technology* Vol. 50 (5), pp.565-577.

8. Nguyen Huu Mui, Vu Dinh Hoa, Luc Tri Tuyen (2012), "A Parallel Genetic Algorithm for the Job Shop Scheduling Problem", *Proceedings IEEE ISSPIT 2012*, Published online.

9. Nguyen Huu Mui, Vu Dinh Hoa, Luc Tri Tuyen (2012), "Convergence Analysis of the New Hybrid Genetic Algorithm for the Job Shop Scheduling Problem", *Proceedings IEEE ISSPIT 2012*, Published online.

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