

## Information on Doctoral thesis of Fellows Nguyen Quang Thanh

1. Full name: Nguyen Quang Thanh

2. Sex: Male

3. Date of birth: 1/8/1966

4. Place of birth: Quang Nam - VietNam

5. Admission decision number: 2259/SĐH Date 7/12/1006 by President of VNU

6. Changes in academic process:

- Official dispatch extension N<sup>o</sup>. 3358/QĐ-CTSV, 17/12/2009 from the Hanoi University of Science;

- Official dispatch permission of academic suspension N<sup>o</sup>. 3583/QĐ-SĐH, 8/12/2010 from Vietnam National University, Hanoi;

- Official dispatch for PhD continue study N<sup>o</sup>. 2311/ĐHQGHN-ĐT, 12/7/2011 from Vietnam National University, Hanoi.

7. Official thesis title: *Exploiting Time-series Data*

8. Major: Mathematical Foundation for Computers and Computing Systems.

9. Code: 62 46 35 01

10. Supervisors:

- Assoc.Prof. Dr. Hoang Chi Thanh,

- Assoc.Prof. Dr Sc Nguyen Xuan Huy

11. Summary of the new findings of the thesis

Aiming to continue and further elaborate time-series data mining ideas both home and abroad, the remarkable results achieved by this study are:

- a) Successful development and application of new algorithm for set partition to data classification in general and time-series data classification in particular.
- b) Successful development of new and simple technique to paralelly reduce the dimensions of multi-dimensional time-series data and application of such technique to time-series matching problems.
- c) Suggestion of approximate matching as an extension of data matching problem and development of new algorithm for this problem based on time-series data.
- d) Application of data matching into concurrency control in distributed systems and establishment of an effective algorithm to transform sequential processes into equivalent optimized parallel ones with the purpose of decreasing the processing time.

12. Practical applicability, if any:

These results can be applied for practical:

- Data mining;
- Optimize the control of industrial production lines
- Data searching tasks.

13. Further research directions, if any

- a) Research in applying the data-classified method in urban planning, agricultural land planning, education, health-care and trade planning.
- b) Extension of compared problem bases on chronological data with various patterns data.
- c) Applicable comparison in long and short-term forecasting of economy, finance, weather, population and income.

14. Thesis-related publications:

- 1) Nguyen Xuan Huy, Le Quoc Hung, Luong Nguyen Hoang Hoa, Nguyen Quang Thanh (2007), "The algorithm identified the longest repeat section", *Proceedings of the Scientific Conference, the 30th anniversary of the founding of the Institute of Information Technology*, Publishing Science and Technology, pp. 411-415.
- 2) Hoang Chi Thanh, Nguyen Quang Thanh (2008), "Method shortened parallel dimension the series of data for time," *Proceedings of the National Workshop 11<sup>th</sup>, Some of selected issues of Information Technology and Communication*, Publishing of Science and Technology, pp. 313-320.
- 3) Hoang Chi Thanh, Nguyen Quang Thanh (2010), "Application of matching methods in concurrency control", *Proceedings of the Scientific Conference Technology National 4<sup>th</sup>, Basic Research and Applied Information Technology*, Publishing of Science and Technology, pp. 189-196.
- 4) Hoang Chi Thanh, Nguyen Quang Thanh (2011), "A parallel dimensionality reduction for time-series data and some its applications", *International Journal of Intelligent Information and Database Systems*, Inderscience, 5 (1), pp. 39-48.
- 5) Hoang Chi Thanh, Nguyen Quang Thanh (2011), "An efficient parallel algorithm for the set partition problem", *Studies in Computational Intelligence*, Springer, 351, pp. 25-32.
- 6) Hoang Chi Thanh, Nguyen Quang Thanh (2012), "Application of partition in the data classification problems", *Proceedings of the National Conference 14th, Some of selected issues and Information Technology communication*, Publishing of Science and Technology, pp. 542-554.
- 7) Hoang Chi Thanh, Nguyen Quang Thanh (2012), "Some New Combinatorial Algorithms with Appropriate Representations of Solutions", *Journal of Science, Mathematics and Physics, Vietnam National University, Hanoi*, 28(1), pp. 1-10.