INFORMATION ON DOCTORAL THESIS

1. Full name: Pham Quoc Thang .... 2. Sex: Male ....

3. Date of birth: 11/06/1979 .... 4. Place of birth: Thai Binh ....

5. Admission decision number: 1138/QĐ-CTSV Dated 18/12/2013 ....

6. Changes in academic process:

    - Decision No. 1135/QD-ĐT dated December 30, 2016 on extending the training period for PhD students.

    - Decision No. 108/QD-ĐT dated January 25, 2019 on the return of PhD students to working agencies.

7. Official thesis title: Improving Performance of Reduced RBF Models for Classification Problems ....

8. Major: Computer Science .... 9. Code: 9480101.01 ....

10. Supervisors: Prof. Dr. Nguyen Thanh Thuy, Assoc. Prof. Dr. Nguyen Duc Dung ....

(Full name, academic title and degree)

11. Summary of the **new findings** of the thesis:

    - The thesis has developed the SimpSVM-SVD algorithm that allows to speed up the SVM test phase by reducing the SVM solution, reducing the number of support vectors, ensuring that the classification accuracy remains the same.

    - The thesis has developed the FastRVM algorithm that allows to speed up the RVM training phase, ensuring that the classification accuracy remains the same. At the same time, it enhances the ability of the RVM method to work on larger data sets.

    - The thesis contributes to studying and applying reduced RBF models in object recognition, specifically object classification in practical problems such as: sign language recognition, gesture recognition, flower image classification.

    - The thesis has analyzed, compared and evaluated the training methods of the reduced RBF model for object classification and other computational requirements. This study provides conclusions about the suitability of these methods under specific circumstances.

12. Practical applicability, if any: the research results of the reduced RBF model have

practical significance, which can be applied in applications requiring fast information processing such as processing data transmitted from sensors, image and video signal processing, information safety and security…

13. Further research directions, if any:

    - Continue to develop the SimpSVM method in the direction of using heuristics to select reduced and adjusted vectors.

    - Continue to develop FastRVM method in the direction of using other data subset sampling techniques such as probability distribution sampling, combined with using other heuristics to select RV candidates with high probability of being selected. included in the model.

14. Thesis-related publications:

[1] Pham Q.T., Nguyen D.D., Nguyen T.T., A comparison of SimpSVM and RVM on sign language recognition, In the Proceedings of the International Conference on Machine Learning and Soft Computing (ICMLSC 2017), ISBN: 978-1-4503-4828-7, ACM, 2017, pp. 98-104 (Scopus).

[2] Pham Q.T., Nguyen T.T., Hoang T.L., The SVM, SimpSVM and RVM on sign language recognition problem, In the Proceedings of the 7th International Conference on Information Science and Technology (ICIST 2017), ISBN: 978-1-5090-5401-5, IEEE, 2017, pp. 398-403.

[3] Nguyen D.H., Pham Q.T., Nguyen D.D., RBF Models with Shallow and Deep Feature for Skeleton-based Human Gesture Recognition, In the Proceedings of the National Foundation for Science and Technology Development (NAFOSTED) Conference on Information and Computer Science (NICS), IEEE, 2017, pp. 72-77.

[4] Pham Q.T., Nguyen T.T., Hoang T.L., A Modification of Solution Optimization in Support Vector Machine Simplification for Classification, In: Bhateja V., Nguyen B., Nguyen N., Satapathy S., Le DN. (eds) Information Systems Design and Intelligent Applications. Advances in Intelligent Systems and Computing, vol 672. Springer, Singapore, 2018, pp. 149-158 (ISI Web of Science, Scopus).

[5] Pham Q.T., Hoang T.L., Nguyen T.T., Improving Simplification of Support Vector Machine for Classification, International Journal of Machine Learning and Computing, vol. 8, no. 4, pp. 372-376, 2018 (Scopus, Q3).

Date: ……………………..   Date: ……………………..
Signature: …………………   Signature: …………………
Full name: Prof. Dr. Nguyen Thanh Thuy   Full name: Pham Quoc Thang