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**INFORMATION ON NEW ACADEMIC AND THEORETICAL
CONTRIBUTIONS OF THE THESIS**

Thesis's Title: Enhancing the Efficiency of Machine Learning Models for Biomedical Data.

Major: Computer Science

Code: 9480101

PhD Candidate: Duong Thi Kim Chi

Course 2016

University: Lac Hong University

Science Instructor: Associate Professor Dr. Tran Van Lang

The contributions of the thesis on science and practice, include:

Scientifically, Finding new solutions to enhance the effectiveness of machine learning models in biomedical data. In the proposed approaches, the thesis focused on addressing two major challenges in deploying machine learning models for two types of biomedical data: molecular biology data and clinical, laboratory data. Specifically, the thesis accomplished the following tasks:

- Designing effective machine learning models for molecular biology data in gene expression determination, which can be applied in drug development.
- Constructing effective machine learning models for species identification tasks.
- Developing efficient machine learning models for disease diagnosis in the field of biomedicine.

The thesis proposed a new approach to optimize information processing for biomedical data. Specifically, for gene sequence data, improvements were made in tasks such as sequence identification, finding target genes, and selecting suitable host cell environments for protein recombination design. For biomedical data, the thesis proposed automated feature extraction solutions for clinical data in disease diagnosis using machine learning and deep learning methods.

The thesis has published 07 papers, including 01 SCIE Q2 paper and 01 ESCI Q2 paper.

Practically, The thesis proposed effective machine learning models for molecular biology data in protein recombination production, species identification, and biomedical data in disease diagnosis tasks. This contributes to the application of machine learning technology in optimizing the processes of protein recombination production, species identification, and disease diagnosis.

SCIENCE INSTRUCTOR
(sign, write full name)

Dong Nai, December 8th, 2023
PHD CANDIDATE

Associate Professor Dr. Tran Van Lang

Duong Thi Kim Chi