# Kim Khanh Hoang

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## Education

**Hanoi University of Science and Techonology** *Sep 2021 – Present*
*B.Sc. in Applied Mathematics and Informatics*

- **GPA**: 3.56/4.0
- **Coursework:** Probability Theory and Statistics, Linear Algebra, Optimization

**Co Loa High School** *Aug 2018 – Aug 2021*

## Skills

**Languages:** Python, SQL, Bash

**Frameworks:** Pytorch, TensorFlow, Scikit-learn

**Tools:** Kubernetes, Docker, GIT, MySQL

**Platforms:** Linux, AWS, GCP

**Soft Skills:** Leadership, Time Management, Event Management

## Experience

**Deep learning applications in the problem of automatic multiple-choice exam grading** | **Github** *Feb 2024 - Jul 2024*
*Project 1*

- Designed and implemented an automated grading system which aims to enhances accuracy and impartiality, reduces human involvement and conserves time
- Employed multi-template matching algorithms and image processing techniques to separate the input image. Then, the YOLO-NAS model and the K-means algorithm were utilized to identify the filled circles and compare the findings with the correct answers to obtain the results
- The metric mAP50 achieved a result of 99.5%, and other metrics, including precision, recall, and F1 score are also commendable. In the future, it can be developed into an automatic grading system

**Deploy image retrieval project on GCP** | **Github** *Mar 2024 - Jun 2024*
*Computer Network Project*

- Utilized the SOTA ViT model on the Oxford5k benchmark dataset to generate database embeddings, subsequently compared with the query embedding to ascertain the top-k most comparable images
- Created VM instances on Google Cloud Platform (GCP) and connected to the virtual machine via SSH. Utilized the Gradio library to construct the interactive interface and present the outcome

**Multiobjective Optimization** | **Github** *Sep 2024 - Present*
*Project 2*

- Investigated the foundational theories in unconstrained multi-objective optimization, including convex set, convex function, Pareto optimality, weak Pareto optimality and Pareto criticality
- Expanding the findings of the gradient descent method beyond single-objective to multi-objective problems, encompassing non-convex, convex, and strongly convex cases
- Illustrating the algorithm using specific instances to verify its reliability

## Publications

**A machine learning based method for improving the performance of water quality prediction** *Jun 2024*
*Huu Du Nguyen*, ***Kim Khanh Hoang***, *Thai Duong Nguyen*, *Dao Minh Hoang*, *Tran Ngoc Thang*

## Honors and Awards

**A-type study encouragement scholarship** *Jun 2024*

**Second prize of Mathematics provincial round in Vietnam Student Olympiad** *Oct 2020*

## Activities

**Participated in and completed the challenging problems of modeling mathematics of Toan Mo hinh Ha Noi** *Jun 2022*

**Participated in the 21st Optimization and Scientific Computing Workshop in Ba Vi** *Apr 2023*

## References

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