Thang-Long Nguyen-Ho

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RESEARCH EXPERIENCE

Research Assistant, SELab, University of Science, VNU-HCM   2019 - Present
Supervised by Assoc. Prof Minh-Triet Tran on Computer Vision
- Participate in Computer Vision researchs aiming at building smart environments system
(detection and recognition of objects from visual understanding)

Research Assistant, Robotics & IoT Club, AI Lab, University of Science, VNU-HCM   2019 - 2021
Supervised by MSc Xuan-Nam Cao, Assoc. Prof Minh-Triet Tran on Robotics, Computer Vision
- Participate in robotics-related activities aiming at designing autonomous car system
(using ROS on simulator and hardware devices, develop and optimize deep model processing time)

SELECTED PROJECTS

SSDF - Simulation Self Driving Framework: Project aiming at solving autonomous driving problems in a virtual simulation. It provides a collection of algorithms for perception, prediction, and control, as well as tools for data processing and training.   2020 - Present
- Create multiple custom environments and provide synthesis datasets by Unity3D
- Design Pytorch algorithm library for lane and object detection. Implement fitting and tracking algorithms using module compose design. Contribute to deployment module for inference on edge devices.
- Able to interact with the simulation environment through ROS or Socket.

Video Event Retrieval: A Python package with up-to-date algorithms for query traffic events.   2021
- Implement image text matching model using Pytorch Lightning and refinement module for explainable improvements. Also, provide a visualization tool for each stage's results.

Vietnamese OCR Toolbox: A comprehensive toolbox that provides a set of tools for all essential steps of an OCR pipeline, from image pre-processing to text extraction and recognition, effective in recognizing Vietnamese text in a variety of documents.   2021
- Include document extraction and normalization algorithms from wild images.
- Provide multiple text region detection and Vietnamese OCR algorithms from a variety of libraries.
- Perform word correction on Vietnamese text and retrieve information from the extracted data.

SELECTED PUBLICATIONS

Conference - Workshop Papers
- **Thang-Long Nguyen-Ho**, Minh-Khoi Pham, Tien-Phat Nguyen, Hai-Dang Nguyen, Minh N. Do, Tam V. Nguyen, Minh-Triet Tran, 2022. **Text Query based Traffic Video Event Retrieval with Global-Local Fusion Embedding**. *The 2022 Ai City Challenge - CVPRW*
- Hung Vinh Tran, Trong-Thang Pham, Hai-Tuan Ho-Nguyen, Hoai-Lam Nguyen-Hy, Xuan-Vy Nguyen, **Thang-Long Nguyen-Ho**, Minh-Triet Tran, 2019. **Scene Category Protection with Back Propagation and Image Enhancement**. *CEUR Workshop Proceedings*.
- Ivan Sipiran, Patrick Lazo, Cristian Lopez, Milagritos Jimenez, Nihar Bagewadi, Benjamin Bustos, Hieu Dao, . . . Dinh-Huan Nguyen, **Thang-Long Nguyen-Ho**, et al, 2021. **Retrieval of Cultural Heritage Objects**. *SHREC 2021: Computer and Graphics*.

SELECTED AWARDS

First Prize on Ho Chi Minh AI Challenge   2020
- Participating teams will count vehicles that follow pre-defined movements
from multiple camera scenes in a Vietnamese dataset. Contestants include
all-level researchers and engineers in Vietnam

First Prize on Ho Chi Minh AI Hackathon   2020
- Participating teams will detect anomaly features from multiple scenes in Vietnam
within a time limitation

Honorable Mention Awards on National Digital Race   2019
- Participating teams implement their algorithm on a real self-driving car by using ROS

First Prize International Science and Engineering Fair, High School, Software Engineering field   2017
- Implement interactively application with a hand gesture to visualize the virtual anatomy
and simulate the interaction with some physical material
- Intel Excellence Award in Computer Science

EDUCATION	**B.S Computer Science**, University of Science, VNU-HCM	2018 - 2023

EDUCATION **B.S Computer Science**, University of Science, VNU-HCM   2018 - 2023
Honors Program, Major GPA: 3.89 / 4.00
Thesis - Semi-supervised Organ Segmentation - 4.00 / 4.00   Supervisor - Assoc. Prof Minh-Triet Tran

ACTIVITIES **Head of Content Team**, PiMA - Projects in Mathematics and Applications   2019 - Present
- Organize mathematics workshops for high school students: prepare and present the workshop content.
  Past workshops' topics: Graph Theory (2019), Probability and Statistics (2020)
- Organize annual 10-day mathematics summer camps for high school students: prepare teaching materials, give lectures, and provide assistance to students.
  Past camps' topics: Deep Learning (2019), Mathematics in Data Science (2021), BioInformatics (2023)

SKILLS **Languages:** Vietnamese (native), English
Programming languages: Python, C++, C Sharp **Tools:** Docker, Git, CMake
Deep learning framework: PyTorch, LibTorch, TensorRT
Robotics framework: ROS **Data Platform:** DataBricks

REFERENCES **Assoc. Prof Minh-Triet Tran** Vice President, Head of Software Engineering Lab, Deputy Head of Artificial Intelligence Lab – University of Science, VNU-HCM   *tmtriet@hcmus.edu.vn*