**CAO LE CONG MINH**

*Embedded system* **📱**: 0775001551

*Computer vision*  [Minh-CaoLeCong](https://github.com/Minh-CaoLeCong)

*Machine learning* 📧: [minh.caolecong@gmail.com](mailto:minh.caolecong@gmail.com)

**EDUCATION**

**HCMC University of Technology and Education** – Ho Chi Minh, Vietnam.

*B.Eng. Mechatronics Engineering.* Sep 2019

**TECHNICAL SKILLS**

*Programming languages***:** C/C++, Python, MATLAB, VBA, C#.

*Computer vision libraries*: OpenCV-CUDA, Numpy, Matplotlib.

*Machine learning libraries*: Scikit-learn.

*Version control*: Git.

*Operating Systems*: Linux-Ubuntu (Raspberry), Windows.

*Embedded system development:* Arduino, Arm – Keil, PIC – CCS.

*Mechanical software:* AutoCAD, Maple.

**EMPLOYMENT HISTORY**

**Embedded Software Intern** at **BOSCH** **-** Ho Chi Minh, Vietnam. Jul 2018 – Mar 2019

I was in a team that was responsible for embedded software development for both Diesel and Gasoline Engine Control System of BMW and Volkswagen customer.

* Found out the root cause of the warnings and error messages of the embedded programming, assessed those was critical or not (not fixed on code).
* Fixed code to obey the MISRA C – 2012 [[repo](https://github.com/Minh-CaoLeCong/MISRA_C)] rules if there were any warning messages about the violation of MISRA standards.
* Coordinated with Packages Responsible (P-Res) to analyzed Function Component's lock conditions to see if it affected to Project Version's functionalities.
* Teck Stack: C/C++, VBA, Python, MS Office.

**RESEARCH HISTORY**

**Fruit quality evaluation** [[repo](https://github.com/Minh-CaoLeCong/Fruit_Quality_Evaluation1)]*-* HCMC University of Technology and Education. 2020

*Proposed a method using computer vision to grade the quality of the fruit (mango & apple golden).*

* Applied image processing algorithms (Canny edge detection) to separate the background for processing the significant area during the object evaluation - Image segmentation.
* Developed an algorithm to remove the peduncle/pedicle by analyzing the contour of the fruit.
* Extracted morphological features such as size and shape (projected area, length, width, perimeter).
* Built linear regression model to estimate weight of the fruit based on the number of pixels belonging to the area of each fruit excluding the pedicel/peduncle (achieved approximately 95% accuracy).
* Used OpenCV-CUDA both on CPU and GPU to try to accelerate the algorithm.
* Executed the algorithm by using multithreading and multiprocessing in python.

*Key skills:* C/C++, Python, OpenCV, CUDA, Scikit-learn, Digital Image Processing, Machine Learning.

*Advised by* M.S. Tran Tien Duc*.*

**ACADEMIC PROJECTS**

**Driving fatigue detection using deep learning** [[thesis](https://drive.google.com/file/d/1lGLEYMu4BpG22Wsevo558Leix3MNL8oX/view?usp=sharing)]*–* Graduation project*.*  Feb 2019 – Jul 2019

*Developed an algorithm using computer vision system to detect driver drowsiness based on behavioral indicators such as head and eyelid movements.*

* Applied image processing algorithms (color balancing, histogram equalization and power law transformation) to enhance image qualification.
* Implemented various face detection technique such as Haar Cascades, deep neural network - DNN (Caffe and TensorFlow model).
* Extracted behavioral features such as eye blink duration, frequency, and yawning duration based on facial landmark detection.

*Key skills:* C/C++, OpenCV - CUDA, Dlib, Digital Image Processing.

*Advised by* PhD. Bui Ha Duc (NUS)*.*

**Digital image processing** [[repo](https://github.com/Minh-CaoLeCong/Digital_Image_Processing)] **–** Course project. Sep 2018 – Dec 2018

*Implemented digital image processing algorithms from scratch.*

*Key skills:* C/C++, Python.

*Advised by* M.S. Tran Tien Duc*.*

**Dancing robot** [[repo](https://github.com/Minh-CaoLeCong/Dancing_Robot)] **–** Course project. Mar 2018 – May 2018

*Built an autonomous robot dancing by beats/rhythms of music.*

*Key skills:* AutoCAD, Arduino, C/C++.

**Service robot** [[repo](https://github.com/Minh-CaoLeCong/Service_Robot)] **–** Course project. Mar 2018 – May 2018

*Designed UI (user interface) by using WPF.*

*Key skills:* C#, WPF.

**AWARDS**

**Consolation award, 30th National Mechanics Olympic, Vietnam.** May 2018

*Tutored by* Ph.D. Truong Quang Tri.[🔗](https://scholar.google.com/citations?user=lji2NnEAAAAJ&hl=en)