Toan-Khoa Nguyen (Niko)

CONTACT INFORMATION

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EDUCATION

National Taiwan University of Science and Technology, Taiwan 2020–Present
Master of Electrical Engineering

- Research Interest: Image Processing, Computer Vision, Image Segmentation
- Advisor: Professor Chung-Hsien Kuo and Professor Shun-Feng Su
- GPA: **4.27/4.3**

Ho Chi Minh University of Technology, Vietnam 2013–2018

Bachelor of Automotive Engineering

RESEARCH EXPERIENCE

Autonomous & Soft Robotics Laboratory, National Taiwan University 2020–Present

- Research Topics: Segmentation technologies for Autonomous mobile robots
- Skilled gained: Developing a self-supervised learning method for drivable area and road anomalies segmentation. Providing an automatic system to generate segmentation labels for drivable area and road obstacles. Training the self-supervised labels with semantic segmentation neural networks to perform robust prediction in real-time on mobile robots.

RESEARCH INTERESTS

My current research focuses mainly on Semantic Segmentation for applications on mobile robots, in which I utilize various techniques from traditional image processing to taking the advantages of deep learning methods to develop an efficient automatic labeling method. In addition, I used different attention-based methods to enrich the feature map in fusing the RGB-D input data to enhance the performance of the automatic labeling system.

PUBLICATIONS

- **Toan-Khoa Nguyen**, Phuc Thanh-Thien Nguyen, Dai-Dong Nguyen, Chung-Hsien Kuo. Effective Free-driving Region Detection for Mobile Robots by Uncertainty Estimation Using RGB-D Data.
  - *MDPI Sensors 2022, Volume 22, No. 13*
- Minh-Quang Tran, Meng-Kun Liu, Quoc-Viet Tran, **Toan-Khoa Nguyen**. Effective Fault Diagnosis Based on Wavelet and Convolutional Attention Neural Network for Induction Motors.
  - *IEEE Transactions on Instrumentations and Measurement, Volume 71*
- Ming-Hong Hsu, Phuc Thanh-Thien Nguyen, Dai-Dong Nguyen, **Toan-Khoa Nguyen**, Chung-Hsien Kuo. Fabrication and Image Servo Tracking Study of a Continuum Robot Prototype.
  - *International Journal of iRobotics, 2021, Volume 4, No. 2*

HONORS AND AWARDS

- Phase 1 Finalist, OpenCV AI competition 2021
- Full Scholarship of National Taiwan University of Science and Technology 2020

TECHNICAL SKILLS

- *System:* Windows, Linux
- *Programming Languages:* Python, MATLAB
- *Framework:* OpenCV, Tensorflow, Pytorch, Git

OTHER ACTIVITIES

- **Teaching Assistant** at IoT Programming and Practice Course
  - Instructor: Professor Minh-Quang Tran
- **Teaching Assistant** at Fundamental of Self-Driving Cars Course
  - Instructor: Professor Shu-Hao Liang

LANGUAGES

- Vietnamese: Native
- English: Proficient (IELTS Overall 6.0)

REFERENCES

Dr. **Chung-Hsien Kuo**
Professor, Department of Mechanical Engineering, National Taiwan University
President, Robotics Society of Taiwan (RST)/ 台灣機器人學會理事長
Email: chunghsien@ntu.edu.tw

Dr. **Shu-Hao Liang**
Professor, Industry 4.0 Center, National Taiwan University of Science and Technology
Email: shuhaoliang@mail.ntust.edu.tw

Dr. **Minh-Quang Tran**
Professor, Industry 4.0 Center, National Taiwan University of Science and Technology
Email: minhquang.tran@mail.ntust.edu.tw