

TRUNG HIEU LE

@ letrunghieu10111996@gmail.com ☎ 0777785733 in le-hieu

🌐 <https://github.com/hieule96> 🌐 <https://www.i3s.unice.fr/~thle/>



EXPERIENCE

Phd student in Data Compression / Develop a real time video transmission system for remote control vehicle

I3S Laboratory - CNRS

📅 Novembre 2020-Now 📍 Sophia Antipolis, France

- Primary contributor to the development of a new image compression method, leveraging neural networks with PyTorch for DNA data storage.
- Contribute to the development of the standard JPEG DNA (ITU-T SG16) *implemented in C/C++*.
- The primary developer of a multiple-description coding solution based on the HEVC standard, *implemented in C++*.
- Benchmark the developed solution using the ns-3 network simulator under a wireless channel model.
- **Result:**
 - Improve the noise resilience by up to 3 dB (70% increase) in PSNR compared to conventional HEVC.
 - The first neural compression method that currently stands as the state of the art for DNA data storage in terms of rate-distortion performance.
 - Published four papers in top-tier international and national conferences.

Embedded System Development Engineer / Develop a solution for real-time video transmission over the 4G LTE network

FDI Matelec - URMET SA

📅 Février 2020 – November 2020 📍 Les Landes-Génusson, France

- Participate in the development of *MJPEG video transmission* over the *UDP protocol* through the *4G network*, *implemented in C*.
- Improve the stability of the videophone system running on FreeRTOS.
- **Result: Increase the number of images transmitted per second from 3 to 15 over 4G network**

Study Project / CAN-MQTT Gateway for Industrial Equipment

CP George Renault Company

📅 Septembre 2019 – Janvier 2020 📍 Nantes, France

- Designed and developed a solution for converting *CAN messages* from wired to *MQTT over Wi-Fi*, *implemented in C*.
- **Result: a first prototype that connects the old production machines to the company's wifi network in order to centralize management on the server.**

Intern Developer / Fruit type classification based on infrared spectrum

Da Nang Institut International of Technology

📅 Juin 2019 – Septembre 2019 📍 Da Nang, Viet Nam

- Create a fruit identification application using infrared spectrum analysis and machine learning.
- Develop a GUI in *C++* to facilitate communication between the computer and the spectrometer.
- **Result: An experimental prototype with 80 % accuracy on classification.**

PUBLICATION

- Trung-Hieu, Le, Antonini Marc, et al. (2023). "Multiple Description Video Coding for Real-Time Applications using HEVC". in: *2023 IEEE International Conference on Image Processing (ICIP)*.
- Trung-Hieu, Le, Pic Xavier, Mateos Jeremy, et al. (2023). "Implicit Neural Multiple Description for DNA-based data storage". In: *arXiv 2309.06956*.
- Trung-Hieu, Le, Pic Xavier, and Antonini Marc (2023). "INR-MDSQC: Implicit Neural Representation Multiple Description Scalar Quantization for robust image Coding". In: *2023 IEEE International Workshop on MultiMedia Signal Processing (MMSP)*.
- Trung-Hieu, Le, Antonini Marc, et al. (2022). "Codage vidéo à description multiple basé sur HEVC pour le pilotage de véhicules semi-autonomes". In: *GRETSI 2022*.

EDUCATION

Phd in Automatic Control, Signal and Image Processing (In Preparation)

University of Côte d'Azur

📅 2024 📍 Nice, France

Electronic Engineering degree (Master Level)

Polytechnic School of Nice University

📅 2020 📍 Nice-France

French Baccalaureate

Jean de la Fontaine High School

📅 2015 📍 Paris 16e-France

AWARD

🏆 **Best student paper award at IEEE-International Workshop Multimedia Signal Processing 2023**
Poitier-France

🏆 **Best paper award at COMpression et REprésentation des Signaux Audiovisuels 2023**
Lille-France

SKILL

TECHNICAL

- Python, Pytorch, C, C++,Java, (MQTT)
- FPGA, Modelsim, VHDL
- ARM processor, FreeRTOS, Linux
- Image and Video compression standard (JPEG, HEVC)
- Messaging Protocol
- Networking (TCP, UDP)
- Serial Protocol (UART, CAN, USB)
- Wireless Network (802.11, 4G, 5G)
- Neural Networks
- Sensor Interfacing
- Git, CMake

PROFESSIONAL

- Efficient Time Management
- Collaborative Team Skills
- Effective Problem Resolution
- Proactive Leadership

LANGUAGE

- **French:** Bilingual
- **English** (TOEIC 860): Professional Proficiency
- **Vietnamese:** Native

REFeree

Professeur Marc Antonini - CNRS Research

Director

@ I3S Laboratory-CNRS

✉ am@i3s.unice.fr

M. Marc Lambert - Director of Data & AI

Operations

@ Reel IT Group

✉ lextan@orange.fr