TRUNG HIEU LE

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EXPERIENCE

Laboratoire I3S - CNRS

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

Novembre 2020-Now Sophia Antipolis, France

- The primary contributor to the development of a new image compression method based on *neural networks using Pytorch* for *DNA data storage*.
- 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:The first neural compression method that currently stands as the state of the art for DNA data storage in terms of rate-distortion performance. Resilience to the noise by 3dB compared to classic image compression.**

FDI Matelec - URMET SA

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

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.**

CP George Renault Company

Study Project - CAN -MQTT Gateway for Industrial Equipment

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.**

Da Nang Institut International of Technology

Intern Developer - Fruit type classification based on infrared spectrum

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 detection.**

PUBLICATION

Conference Proceedings

- 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 (Equivalent to European Master degree)

Polytechnic School of Nice University

2020 Nice-France

French Baccalaureate

Jean de la Fontaine High School

2015 Paris 16e-France

AWARD

Best paper award at CORESA 2023
Université de Lille

SKILL

Programming languages: C, C++,Python,Java

Simulation: Modelsim VHDL, ns-3

Technology: Microcontrôleur ARM, FPGA, FreeRTOS, Linux

Image and Video Compression Technologies: HEVC, JPEG, image compression using neural networks

ML Framework: Pytorch

Tools: GitHub, CMake

LANGUAGE

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

REFEREE

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