LAROCHE Charles

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EDUCATION

Université Paris Cité x GoPro *July 2021 - July 2024*
PhD in applied mathematics: *Deep Learning for Image Restoration for Digital Photography*

University Paris Saclay *September 2019 - September 2020*
Master 2 in statistics and machine learning (StatML).

ENSAE IP Paris *September 2017 - September 2020*
Leading French engineering school in data science, statistics and economy.

WORK EXPERIENCE

GoPro, Paris *June 2020 - Ongoing*

Internship followed by a PhD between GoPro and Université Paris Cité under CIFRE funding. The goal of the PhD is to design various image restoration algorithms. The PhD title is *Deep Learning for Image Restoration for Digital Photography.*

Uizard Technologies, Copenhagen *June 2019 - September 2019*

Internship Image refinement for semi-supervised learning with Generative Adversarial Networks (cycle-GAN, simGAN and style-transfer).

CNRS (CREST), Palaiseau *June 2018 - September 2018*

Internship: Robust machine learning with Median of Means (MOM) estimators under the supervision of Guillaume Lecué. Application to LASSO, matching pursuit and cross-validation. The project continued during my second year of engineering school to design a training loop for deep neural networks using MOM techniques.

RESEARCH ARTICLES

Charles Laroche, Andrés Almansa, Eva Coupeté. Fast Diffusion EM: a diffusion model for blind inverse problems with application to deconvolution, IEEE/CVF Winter Conference on Applications of Computer Vision (WACV) 2024.

Charles Laroche, Andrés Almansa, Eva Coupeté, Matias Tassano. Provably Convergent Plug & Play Linearized ADMM, applied to Deblurring Spatially Varying Kernels, IEEE International Conference on Acoustics, Speech and Signal Processing (ICASSP) 2023.

Charles Laroche, Andrés Almansa, Matias Tassano. Deep Model-Based Super-Resolution with Non-uniform Blur, IEEE/CVF Winter Conference on Applications of Computer Vision (WACV) 2023.

C. Laroche and Matias Tassano. Bridging the Domain Gap in Real World Super-Resolution, IEEE International Conference on Image Processing (ICIP) 2022.

TALKS

3rd IMA Conference on Inverse Problems from Theory to Application, Edinburgh, UK.
Deep model-based super-resolution with non-uniform blur. May 2022

Workshop of Mathematical Models for Plug-and-play Image Restoration, Paris, France.
Provably Convergent Plug & Play Linearized ADMM applied to Deblurring Spatially Varying Kernels. December 2022

TEACHING

Algorithm and Programming at ENSAE IP Paris *2020 - 2022*

Python for Data Science at ENSAE IP Paris *2022 - 2023*

LANGUAGES

French: Mother tongue, English: TOIEC 935, Spanish: spoken and written.

HOBBIES

Mountain-bike (Federal coach and competitor), running, skiing and all mountain-related activities.