SAMUEL HURAULT

PhD student (3rd year)

@ samuel.hurault@math.u-bordeaux.fr scholar https://scholar.google.fr/citations?user=f_rtYCAAAAAJ&hl=fr
https://github.com/samuro95 @HuraultSamuel in https://www.linkedin.com/in/samuel-hurault-9809b4127/

Education

PhD in Computer Vision

Institut de Mathématiques de Bordeaux

Since October 2020 — Bordeaux, France

Supervisors : Prof. Nicolas Papadakis, Dr. Arthur Leclaire

Denoising priors for image and video restoration: new performant algorithms with theoretical convergence guarantees.

Master "MVA" Mathematics, Vision, Learning

Paris-Saclay University

2018 – 2019 — Paris, France

Degree in Mathematics

Ecole Normale Superieure Paris-Saclay

2016 – 2018 — Cachan, France

Research Experiences

Research visit in 3D Data Processing

Geometric Data Processing Group, CSAIL, Massachusetts Institute of Technology (MIT).

September 2022 – December 2022 — Boston, USA

Supervisor : Prof. Justin Solomon

Denoising score matching on 3D point clouds for shape implicit representation.

Research internship in Video Processing

Image Processing Group, University Pompeu Fabra (UPF)

November 2019 – July 2020 — Barcelona, Spain

Supervisors : Prof. Coloma Ballester, Prof. Gloria Haro

Improved soccer player detection and tracking performance using self-supervision and domain adaptation.

Research internship in Deep Learning

Ministère des Armées

April – September 2019 — Paris, France

Detailed review and performance comparison of acceleration and compression methods for deep neural networks.

Research internship in 3D Vision

Computer Science Department, Otago University

May – September 2018 — Dunedin, New-Zealand

Supervisor : Prof. Steven Mills

Developed (in C++ with DirectX) a Microsoft Hololens mixed reality system to assist pool players.

Research internship in Image Processing

Centre Borelli, ENS Paris-Saclay

January – July 2017 — Cachan, France

Supervisors : Prof. Jean-Michel Morel, Prof. Pablo Arias, Dr. Thibaud Ehret

Analysis, optimization and extensions of the EPLL image denoising algorithm.

Publications

Proximal Denoiser for Convergent Plug-and-Play Optimization with Nonconvex Regularization
S Hurault, A Leclaire, N Papadakis
International Conference on Machine Learning (ICML) (2022)

Gradient Step Denoiser for convergent Plug-and-Play
S Hurault, A Leclaire, N Papadakis
International Conference on Learning Representations (ICLR) (2022)

An Analysis of Generative Methods for Multiple Image Inpainting
Coloma Ballester, Aurelie Bugeau, Samuel Hurault, Simone Parisotto, Patricia Vitoria
Handbook of Mathematical Models and Algorithms in Computer Vision and Imaging, Springer (2022).

Self-Supervised Small Soccer Player Detection and Tracking
S Hurault, C Ballester, G Haro
3rd International Workshop on Multimedia Content Analysis in Sports, 9-18 (2020)

EPLL: an image denoising method using a Gaussian mixture model learned on a large set of patches
S Hurault, T Ehret, P Arias
Image Processing On Line 8, 465-489 (2018)

Talks and presentations

International Conference on Machine Learning (ICML) 2022 *spotlight presentation*
July 2022 — Baltimore, USA

Workshop Analytic and Geometric Approaches to Machine Learning *invited speaker*
July 2022 — Bath, UK

3rd IMA Conference on Inverse Problems from Theory to Application
May 2022 — Edinburgh, Scotland

International Conference on Learning Representation (ICLR) 2022 *poster presentation*
April 2022 — Virtual

SIAM Conference on Imaging Science 2022
March 2022 — Virtual

Teaching

Assistant Professor, Numerical Methods for Mathematics (3rd year of Bachelor)
University of Bordeaux
2020/2021/2022 — Bordeaux, France

Computer Skills

Python | PyTorch | PyTorch | Linux | GIT | Latex | SSH

Languages

English (fluent) | French (native) | Spanish (fluent)