Antoine GUENNEC

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aguennecjacq • birthdate: 12 may 1994 (Lille)

Current situation: PHD in mathematics

I am currently doing a PHD in applied mathematics on the subject of signal decomposition in image processing.

Experience

Bordeaux Public Health, IETO Team
R&D engineer *2020–2021*
Worked on research projects involving AI applied to public health. The two main projects I was involved in were:
- Automatic safety evaluation of pedestrian crossings across France.
- Natural language processing applied to clinical notes of the emergency department.

Education

Institut de Mathématiques de Bordeaux
PHD Thesis: Structure texture decomposition *2021–2024*
Supervisors: Jean-François Aujol et Yann Traonmilin

University of Bordeaux
Master 2, rank: *4/17* *2019–2020*
Mathematical modeling for signal and image processing

University of Bordeaux
Master 1, rank: *3/15* *2018–2019*
Fundamental mathematics: analysis, probability and partial differential equations

University of Bordeaux
Master 1 *2017–2018*
Fundamental mathematics: geometry, algebra and number theory

University of Southern Brittany
Bachelor degree *2014–2017*
Fundamental and applied mathematics

Research

Publications

- A. Guennec, JF. Aujol, Y. Traonmilin, *'Adaptive parameter selection for gradient-sparse + low-patch rank recovery: application to image decomposition'*.(submitted)
- A. Guennec, N. Prencipe, E. Provenzi, *'Automatic White Balance with Lorentz boosts'*. The 4th InternationalConference on Image and Graphics Processing, ICIGP, Sanya, China, January 1-3, 2021.
  ↪ **Awarded best presentation of the session**
- L. Bourbois, M. Avalos, G. Chenais, et al.. *Traitement automatique des résumés de passages aux urgences : focus sur la désidentification*. PFIA 2021 - Santé et I.A. (conference)

Other

- Co-Author in *"Handbook of geometry and all that..."* (book in progress)

Experiences

Supervised research work/internships

Master thesis — **Institut de mathématiques de Bordeaux**
Color constancy and hyperbolic geometry: theory and application — *2020*
Supervisor : E. Provenzi.

grade: 19/20

Master 1: supervised research work — **Institut de mathématiques de Bordeaux**
The Littlewood-Offord problem and it's inverse problem — *2018*
Supervisor : P. Jaming

grade: 17/20

Educational work

University of Bordeaux — **Bordeaux**
2023-2024

I currently teach Analysis II and Image processing to 2^{nd} year and 3^{rd} year undergraduate students respectively.

Private lessons — **Bordeaux**
2018–2020

I have given private lessons in mathematics, in partnership with the private educational center "Centre Pédagogique", teaching 3 to 4 regular students each year. I mainly worked with students in their last year of high school, preparing them for entry into difficult higher education schools such as "prepa" or architecture school.

Work with the handicapped — **Lorient / Vannes**
2014–2017

Under the employment of my university, I provided assistance to students with disabilities (blindness, phocomelia, dyslexia), giving them private lessons when needed and accompanying them during exams and lessons.

University politics

Vice secretary of the doctoral mathematical association of Bordeaux (LAMBDA)
2022-2023

PHD representative of Bordeaux of the Margaux federation
2022-2023

Student representative at the council of the science department of the university
2017–2018

Student representative at the CROUS council
2015–2016

Languages

French: native

English: bilingual

(I've lived 8 years in the UK during my childhood)

Mathematical interests

Although my main specialization is image processing, I have a keen interest in many different fields of mathematics such as wavelet theory, hyperbolic geometry and number theory.
I have also worked on quaternion/split-quaternion/clifford algebras and their respective fourier transforms.

Computer skills

C / C++ , JAVA: *intermediate*

MATLAB/Scilab: *intermediate*

Python: numpy, numba, scipy, pytorch, pandas, PyQt5/PySide6, cuda programming — *advanced*

LaTeX: *advanced*

Linux: *intermediate/ advanced*

Other general points of interest

Music playing (piano and violin), sailing, hiking and climbing, world politics and computer science