



EDUCATION

PhD - Applied mathematics

Grenoble-Alpes University/LIG, Grenoble, France, 2021 – present

Advisors: Patrick Loiseau & Bary Pradelski

Expected graduation: 2024

Master of Science – Optimization and Game Theory

IP Paris/Université Paris-Saclay, Palaiseau, France, 2020 – 2021

Engineering Degree – Applied Mathematics

Ecole Polytechnique, Palaiseau, France, 2017 – 2021

Bachelor of Science - Mathematics

Université Lyon 1, Lyon, France, 2014 – 2017

RESEARCH EXPERIENCE

PhD - Grenoble-Alpes University/LIG - POLARIS team (October 2021 – present)

Studying questions of **fairness** in **matching** processes using **game theory**, under the supervision of **Patrick Loiseau** and **Bary Pradelski**. Particularly interested in **statistical discrimination**, and the role of **correlation of priorities** in fairness and welfare issues.

Research Internship - Grenoble-Alpes University/LIG - POLARIS team (April – September 2021)

Studied questions of **fairness** in **matching** processes using **game theory**, under the supervision of **Patrick Loiseau** and **Bary Pradelski**. Measured the impact of **uncertainty in ranking** on the outcome of the **Deferred Acceptance** algorithm.

Research Internship - Centralesupelec/CVN - OPIS team (May – August 2020)

Studied **Graph Neural Networks** under the supervision of **Jean-Christophe Pesquet**. Realized a survey about this kind of networks and their use in **regression** tasks, as well as their **robustness to adversarial perturbations**. Applied to this model Prof. Pesquet's work about **Lipschitz constants of neural networks**, with experimental validation.

R&D Internship - Mikros Animation (June – August 2019)

Worked as a **software engineer** in **3D animation** inside **Mikros Animation's** research and development team. Developed a **shape correction** tool for characters as a plug-in for **Autodesk Maya**.

PUBLICATIONS

R. Castera, P. Loiseau, and B. S. R. Pradelski. **Statistical discrimination in stable matchings**. In Proceedings of the 23rd ACM Conference on Economics and Computation, EC '22, page 373–374, New York, NY, USA, 2022. Association for Computing Machinery.

TALKS IN INTERNATIONAL CONFERENCES

12th Conference on Economic Design (Padova, Italy, June 9-11 2022): Statistical discrimination in stable matchings

23rd ACM Conference on Economics and Computation (Boulder, CO, USA, July 11-15 2022): Statistical discrimination in stable matchings

33rd Stony Brook International Conference on Game Theory (Stony Brook, NY, USA, July 18-21 2022): Statistical discrimination in stable matchings

From Matching to Markets: A Tale of Mathematics, Economics and Computer Science (CIRM, Marseille, France, December 11 2023): Statistical discrimination in stable matchings

TEACHING EXPERIENCE

Université Grenoble-Alpes:

MAT201: Introduction to linear algebra (teaching assistant, Jan-May 2022)

INF202: Modeling of information structures - formal logic and binary relations (teaching assistant, Jan-May 2022)

MAT309: Algebra and arithmetic (teaching assistant, Sep 2022-Jan 2023)

MAT406: Computer assisted mathematics (teaching assistant, Jan-May 2023)

Lycée militaire d'Aix-en-Provence

Teaching assistant in mathematics and physics for all high school and undergraduate students (Nov-April 2018)

WORKPLACE INVOLVEMENT

Grenoble-Alpes University/LIG

Certified workplace rescuer (SST)

Trained in mental health first aid (PSSM/MHFA)

VOLUNTEERING

French Red Cross:

Grenoble local unit - Board of emergency management and first aid: responsible for operational capacity (May 2022-October 2023)

Rescue team leader, emergency management executive, ambulance driver (Oct 2021 - today)

Certified Instructor (FPS) for training rescuers and teaching first aid to the general population (May 2023 - today)

ASK:

Social patrols, distribution of food, clothes and essential products (Sept 2018 - Mar 2020)