Rémi **Castera**

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EDUCATION

PhD - Applied mathematics
Grenoble-Alpes University/LIG, Grenoble, France, 2021 – present
Advisors: Patrick Loiseau & Bary Pradelski
Expected graduation: October 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** problems using **algorithmic game theory**, under the supervision of **Patrick Loiseau** and **Bary Pradelski**. Particularly interested in **group fairness**, 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.

WORKING PAPERS

R. Castera, F. Garrido-Lucero, M. Molina, S. Mauras, P. Loiseau, and V. Perchet. **Price of Fairness in Bipartite Matching**. https://arxiv.org/abs/2403.00397

R. Castera, P. Loiseau, and B. S. R. Pradelski. **Correlation of Rankings in Matching Markets**. https://hal.science/hal-03672270

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, Marseile, France, December 11, 2023): Statistical discrimination in stable matchings

19th Matching in Practice Workshop (Zurich, Switzerland, March 18-19, 2024): Correlation of Rankings in Matching Markets

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)

LANGUAGES

French - Native speaker
English - C2 level
Italian - C2 level

Spanish - A2 level
Ukrainian - A2 level
Arabic - A1 level

WORKPLACE INVOLVEMENT

Grenoble-Alpes University/LIG
    Certified workplace rescuer (SST)
    Trained in mental health first aid (PSSM/MHFA)

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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 officer, ambulance driver (Oct 2021 - today)
    Certified Instructor for training rescuers and teaching first aid to the general population (May 2023 - today)
    Social patrols, distribution of food, clothes and essential products, night shelter management (April 2022 - today)

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