

# Atulya Jain

## Personal information

PhD candidate  
HEC Paris  
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## EDUCATION

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2018-present **HEC Paris**  
PhD, Economics and Decision Sciences

Spring 2022 **Technion**  
Visiting PhD Student

2017-2018 **Université Paris Saclay**  
MSc, Optimization

2013-2017 **Indian Institute of Technology Guwahati**  
Bachelor of Technology, Engineering Physics (minor in Mathematics)

## RESEARCH FIELDS

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INTERESTS Microeconomic Theory, Information Economics, Behavioral Economics

## RESEARCH WORK

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*(Abstracts are on the last page)*

### Job Market Paper

- “Informing agents amidst biased narratives”

### Working papers

- “Calibrated Forecasting and Persuasion” (with [Vianney Perchet](#))  
*Best Poster, Hi! Paris Summer School 2023*
- “Dynamic Cheap Talk with no feedback”
- “Are Bayesian Persuasion Outcomes efficient?” (with [Itai Arieli](#), [Yakov Babichenko](#) and [Rann Smorodinsky](#))

## REFERENCES

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[Tristan Tomala](#) (advisor)  
HEC Paris  
✉ [tomala@hec.fr](mailto:tomala@hec.fr)

[Nicolas Vieille](#)  
HEC Paris  
✉ [vieille@hec.fr](mailto:vieille@hec.fr)

[Itai Arieli](#)  
Technion  
✉ [iarieli@technion.ac.il](mailto:iarieli@technion.ac.il)

## FELLOWSHIPS & AWARDS

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2023 Best Poster Award, Hi! Paris Summer School  
2022-2024 Hi! Paris Fellowship  
2018-2022 HEC Paris Foundation Scholarship for Excellence

## TEACHING

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2021-2023 Lecturer, Microeconomics (Grande École-Master), HEC Paris  
2021-2023 Teaching Assistant, Managerial Economics (MBA), HEC Paris  
2020 Teaching Assistant, Statistics (Grande École-Master), HEC Paris

## PROFESSIONAL SERVICES

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Referee work	Dynamic Games and Applications
2024 (scheduled)	Co-organizer: <a href="#">Games and Artificial Intelligence Multidisciplinary Summer School 2024</a>
2023	Co-organizer: <a href="#">HEC Economics PhD Conference</a>
2019	PhD representative, HEC Paris

## SEMINARS AND CONFERENCES

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- 2023 PhD Seminar (CREST), Junior Game Theory Seminar (Paris), HEC Paris
- 2022 Junior Game Theory Seminar (Paris), Game Theory Seminar (Technion), Asian School in Economic Theory (NUS), Transatlantic Theory Workshop (Northwestern)
- 2021 Game Theory Seminar (Paris), Economic Theory Reading Group (PSE/Sciences Po), World Congress on Game Theory (Budapest), Workshop in Dynamic Games (Quimper)

## CONFERENCE PROCEEDINGS

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- Eitan Altman, **Atulya Jain**, Yezekael Hayel, “*Finite Improvement Property in a stochastic game arising in competition over popularity in social networks*”, Proceedings of the International Conference on Network Games, Control and Optimization 2016
- Eitan Altman, **Atulya Jain**, Nahum Shimkin, Corinne Touati, “*Dynamic Games for analyzing competition in the Internet and in on-line social networks*”, Proceedings of the International Conference on Network Games, Control and Optimization 2016

## RESEARCH WORK - ABSTRACT

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### “Informing agents amidst biased narratives” (*Job Market Paper*)

I study the strategic interaction between a benevolent sender (who provides data) and a biased narrator (who interprets data) who compete to persuade a boundedly rational receiver (who takes action). The receiver does not know the data-generating model. She chooses between models provided by the sender and the narrator using the maximum likelihood principle, selecting the one that best fits the data given her prior belief. The sender faces a trade-off between providing precise information and minimizing misinterpretation. Surprisingly, full disclosure can be suboptimal and even backfire. I identify a finite set of models that contain the optimal data-generating model, which maximizes the receiver’s expected utility. The sender can guarantee non-negative value of information, preventing harm from misinterpretations. I apply this framework to information campaigns and employee feedback.

### “Calibrated Forecasting and Persuasion” *with Vianney Perchet*

How should an expert send forecasts to maximize her payoff given that she has to pass a calibration test? We consider a dynamic game where an expert sends probability forecasts to a decision-maker. The decision-maker, based on past outcomes, verifies the claims of the expert using the calibration test. We find the optimal forecasting strategy by reducing the dynamic game in terms of a static persuasion problem for the class of stationary ergodic processes. We characterize the value of expertise by showing that an informed expert can achieve the best outcome in the persuasion problem, while an uninformed expert can only achieve the uninformative outcome. We also compare the calibration test and regret minimization as heuristics for decision-making. We show that an expert can always guarantee the calibration benchmark and in some instances, she can guarantee strictly more.

### **“Dynamic Cheap Talk with no feedback”**

I study a dynamic sender-receiver game, where the sequence of states follows an irreducible Markov chain. The sender provides valuable information but gets no feedback on the receiver's actions. Under certain assumptions, I characterize the set of uniform equilibrium payoffs. I show that the sender benefits from the dynamic interaction, even without feedback. The interaction can restore commitment but only partially. The sender can attain any outcome where she cannot profit by altering her signals while keeping the marginal distribution of signals unchanged. If the sender's payoff is state-independent, she can achieve the commitment benchmark of Bayesian Persuasion.

### **“Are Bayesian Persuasion Outcomes Efficient?”** *with Itai Arieli, Yakov Babichenko, and Rann Smorodinsky*

Information transmission between players with asymmetric information can improve outcomes and lead to efficiency. We consider the model of Bayesian persuasion: a sender commits to a signaling policy to persuade an uninformed receiver. We analyze the Pareto efficiency of the equilibrium outcome and provide a necessary condition for it. Within a natural class of games, we show that efficiency is non-trivial and difficult to attain.