

# Hiroto Sato

## CONTACT INFORMATION

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HOME PAGE	<a href="https://hirotosato0127.github.io">https://hirotosato0127.github.io</a>

## EDUCATION

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APRIL 2021-	Ph.D. in Economics, The University of Tokyo, ( <i>magna cum laude</i> )
MARCH 2021	M.A. in Economics, The University of Tokyo
MARCH 2019	B.A. in Economics Nagoya University

## RESEARCH INTERESTS

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Information Economics, Search Theory

## PUBLICATION

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**"Robust Implementation in Sequential Information Design under Supermodular Payoffs and Objective"**, published in *Review of Economic Design* 2022 and won the Review of Economic Design Nedim Okan Prize 2023

This paper studies sequential information design (Doval and Ely 2020) in which a designer can construct the extensive form along with the information structure. In this framework, I investigate robust implementations against adversarial equilibrium selection, when players and the designer have a supermodular payoff function with dominant states and an outside option. The main results show that the optimal partially implementable outcome is fully implementable in sequential information design, which essentially coincides with the optimal partially implementable outcome in static information design. For economic applications such as global game of regime change, this paper proposes a way to robustly achieve the desired outcome in static information design by providing the extensive form and the information structure.

## WORKING PAPER

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**"Information Structures in College Admissions"** (coauthored with Ryo Shirakawa)

Priority uncertainty is prevalent in practical matching markets. This study investigates the role of priority information structures in a simple decentralized college admissions model. The first main theorem characterizes equilibrium distributions of students across schools, which are implementable with a class of simple disclosure rules, cutoff signals. The cutoff signal induces an ex-ante fair allocation that is also the closest to being ex-post fair among the allocations achieving the same distribution. As an application, we consider an information

design problem. The second main theorem shows that each equilibrium distribution is implementable as a unique equilibrium.

**"Information Design in Pandora's Problem"** (coauthored with Ryo Shirakawa)

Information plays a pivotal role in determining search behavior in many economic situations. We study Weitzman's (1979) ordered search model augmented with a planner, who designs information to induce a desired search behavior. The main theorem provides an optimal information structure, which consists of binary signals. We also characterize the planner-optimal search order. Furthermore, the optimal information structure minimizes the welfare of those who engage in sequential search.

**"Persuaded Choice in Ordered Search"** (coauthored with Ryo Shirakawa)

In many economic situations, such as job search and online shopping, agents are sequentially searching for information to choose one of a few options. Information revealed through their search process affects the eventual choice outcomes of such economies. This study explores a Bayesian persuasion problem in Weitzman's (1979) ordered search models. We show that an optimal signal structure consists of three signals for any risk-neutral planner. Neither providing no information nor full information is optimal except for trivial cases. We further derive comparative statics results for the tight bounds of each option's chosen probability and find that Bayesian persuasion minimizes agents' welfare in many cases.

## WORK IN PROGRESS

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**"Migration and Human Capital Investment"** (coauthored with Yuma Noritomo)

**"Feasible Search Behavior"** (coauthored with Ryo Shirakawa)

## AWARDS & GRANTS

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2024 - 2027	JSPS Research Fellowship for Young Scientists (PD), Japan Society for the Promotion of Science
2023	Review of Economic Design Nedim Okan Prize
2022-2024	JSPS Research Fellowship for Young Scientists (DC2), Japan Society for the Promotion of Science
2021-2024	Grant-in-Aid for JSPS Fellows, JSPS
2020-2024	World-leading Innovative Graduate Study of Advanced Economics, the University of Tokyo

## TEACHING EXPERIENCE

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| 2020 | Math Camp Day 4 (Dynamic Optimization), Graduate School of Economics<br><i>Instructor</i>   |
| 2020 | Mathematics for Economics, Graduate School of Economics<br><i>Teaching assistant</i> for Prof. Akihiko Matsui (The University of Tokyo) |

## PRESENTATIONS

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| 2023 | 10th Annual Communication Theory Workshop, Waseda University<br>Microeconomics Seminar, Nagoya university<br>Japanese Economic Association Autumn Meeting, Kansai University<br>Economics and Game Theory Seminar, Tokyo University of Science |
| 2021 | Microeconomics Seminar, The University of Tokyo  |

## BIOGRAPHY

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Birthday: January 27, 1997

Citizenship: Japanese