

# RUI TANG

Gender: Male | Birthday: 08/22/1993

## CONTACT INFORMATION

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Graduate Administrator: Laura Hedden, lhedden@princeton.edu, (609) 258-4006

## EDUCATION

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Ph.D. in Economics, Princeton University (Expected June 2021)	2017-2021
M.A. in Economics, Princeton University	2017-2019
M.Soc.Sc. in Economics, National University of Singapore	2014-2017
B.Sc. in Applied Mathematics, Central University of Finance and Economics	2009-2013

## REFERENCES

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### **Professor Faruk Gul**

fgul@princeton.edu  
Department of Economics  
Princeton University

### **Professor Pietro Ortoleva**

pietro.ortoleva@princeton.edu  
Department of Economics and School of Public and International Affairs  
Princeton University

### **Professor Wolfgang Pesendorfer**

pesendor@princeton.edu  
Department of Economics  
Princeton University

## RESEARCH FIELDS

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Primary: Decision Theory  
Secondary: Mechanism Design, Behavioral Economics, Health Economics

## RESEARCH EXPERIENCE

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Research Assistant for Professor Pietro Ortoleva	2019
Research Assistant for Professor Stephen Morris	2019

## TEACHING EXPERIENCE

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ECO300, Microeconomic Theory, Princeton University	Fall 2020
Teaching Assistant for Professor Andrea Wilson	
ECO310, Microeconomic Theory: A Mathematical Approach, Princeton University	Spring 2019
Teaching Assistant for Professor Andrea Wilson	
Undergraduate Microeconomic Theory I, National University of Singapore	Spring 2016, Spring 2017
Teaching Assistant for Dr. Yang Zhang	
Graduate Microeconomic Theory I, National University of Singapore	Fall 2015, Fall 2016
Teaching Assistant for Professor John K.-H. Quah and Professor Junjie Zhou	

## PUBLICATIONS

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“The Revealed Preference Theory of Stable Matchings with One-sided Preferences” with Gaoji Hu and Jiangtao Li, *Games and Economic Behavior* 124: 305-318, 2020.

“Time Dependency in Physician Decision-Making” with Lawrence Jin, Han Ye, Junjian Yi and Songfa Zhong, *AEA Papers and Proceedings* 110: 284-288, 2020.

“Every Random Choice Rule is Backwards-Induction Rationalizable” with Jiangtao Li, *Games and Economic Behavior* 104: 563-567, 2017.

## WORKING PAPERS

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### “A Theory of Updating Ambiguous Information” (*Job Market Paper*)

*Abstract:* We introduce a new updating rule, the conditional maximum likelihood rule (CML) for updating ambiguous information. The CML formula replaces the likelihood term in Bayes’ rule with the maximal likelihood of the given signal conditional on the state. We show that CML satisfies a new axiom, increasing sensitivity after updating while other updating rules do not. With CML, a decision maker’s posterior is unaffected by the order independent signals arrive. CML also accommodates recent experimental findings on updating signals of unknown accuracy and has simple predictions on learning with such signals. We show that an information designer can almost achieve her maximal payoff with a suitable ambiguous information structure whenever the agent updates according to CML.

### “Path Dependency in Physician Decisions” with Lawrence Jin, Han Ye, Junjian Yi and Songfa Zhong

*Abstract:* We examine path dependency in physician decisions. In both emergency department visits and childbirth deliveries settings where the ordering of patients is conditionally random, we find that physicians’ treatment decision for the current patient is positively correlated with their decision for the previous patient. The estimated path dependency is stronger when consecutive patients share greater similarity, and when the current patient is associated with larger medical uncertainty. To account for our findings, we develop a new model of thinking aversion, in which physicians use their previous information acquisition and treatment strategies as a shortcut to avoid mental cost.

### “A Theory of Revealed Indirect Preference” with Gaoji Hu, Jiangtao Li and John K.-H. Quah

(The previous version of the paper is “Coarse Revealed Preference”.)

*Abstract:* A preference over menus is said to be an indirect preference if it is induced by a preference over the objects that make up those menus, i.e., a menu  $A$  is ranked over  $B$  whenever  $A$  contains one object that is preferred to every object in  $B$ . The basic question we address in this paper is the following: suppose an observer has partial information on an agent’s ranking over certain menus; what necessary and sufficient conditions on those rankings guarantee the existence of a preference over objects that induce the observed menu rankings? Our result generalizes the one in Kreps (1979), which addresses the same issue but considers an observer who knows the ranking over *all* menus. Our basic result has a wide variety of applications. (1) It gives a characterization of those finite rankings over prices that could be extended to a bona fide indirect utility function. (2) It leads to a generalization of Afriat’s (1967) Theorem where we allow for the possibility that choice is imperfectly observed. (3) It could be used to characterize observations that are consistent with a multiple preferences model, where observed choices could have arisen from more than one preference. (4) Lastly, it leads to a characterization of a model of choice generated by minimax regret.

## “Optimistic Dynamic Inconsistency” with Mu Zhang

*Abstract:* We model a decision maker who anticipates her preference to change in the future and optimistically evaluates each menu according to the best choice that could possibly be made by her future self. We characterize this menu preference by axioms weak order, independence, semi-continuity, extremity and concavity. We prove the uniqueness of our representation and introduce comparative measures of optimism. We illustrate how our model connects optimism with the naive quasi-hyperbolic discounting model introduced by O’Donoghue and Rabin (1999, 2001). Our model generates novel predictions on decision makers’ procrastination behavior. In particular, we show that uncertainty about future payoffs can inhibit procrastination.

## “Maxmin Implementation” with Mu Zhang (R&R at *Journal of Economic Theory*)

*Abstract:* This paper studies the implementation problem of a mechanism designer with ambiguity averse agents. The mechanism designer, desiring to implement a choice correspondence, can create ambiguity for the agents by committing to multiple allocation rules and transfer schemes without revealing which one to use. By extending the cyclical monotonicity condition from choice functions to choice correspondences, we show that the condition can fully characterize implementable choice correspondences. We apply the characterization to investigate public procurement problems. Specifically, we show that a government, who wants to delegate a project to one of her most desired firms, can strictly benefit from concealing the tie-breaking rules. An intuitive and computationally tractable condition is provided to characterize when the government’s preference induces an implementable choice correspondence.

## “A Model of Choice with Justification” with Han Ye (R&R at *Journal of Economic Theory*)

*Abstract:* We introduce *justification utility* to measure the extent to which the choice of one alternative can be justified by the availability of another. Each alternative is evaluated based on its intrinsic utility and its *maximal* justification utility in a given menu. We axiomatize choices under such a menu-dependent preference. Our model accommodates attraction effects, diminishing sensitivity, and negative wage elasticities of labor supply. When extended to the domain of risk and uncertainty, choices from our model satisfy first-order stochastic dominance and the negative certainty independence axiom. Our model also accommodates Allais paradox and predicts the preference reversal.

## FELLOWSHIPS, AWARDS, AND HONORS

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DETC Summer Grant	2020
Goldfeld Summer Fellowship	2020
Princeton University Graduate Fellowship	2017-present
NUS Research Scholarship	2014-2017

## PROFESSIONAL ACTIVITIES

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Referee, *Journal of Economic Behavior and Organization*, *Economic Theory*

## INVITED TALKS AND PRESENTATIONS

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2020 Conference for NUS Alumni Theorists  
2019 Johns Hopkins University, Fudan University  
2018 Econometric Society Summer School