

EDUCATION

The University of Pennsylvania	Philadelphia, PA
<i>Ph.D. in Applied Mathematics and Computational Science</i>	08/2016-2021 (expected)
<i>M.A. in Applied Mathematics and Computational Science</i>	08/2018
<ul style="list-style-type: none">• Advisor: Michael Kearns• Selected Coursework: Advanced Machine Learning, Algorithms, Graduate Analysis I-II (Complex, Real, and Functional Analysis), Probability Theory, Stochastic Processes, Numerical Linear Algebra, Computational Learning Theory, Game Theory, Adaptive Data Analysis, Deep Learning, Market Design	
Columbia University	New York, NY
<i>Bachelor of Arts: Double Major in Mathematics and Economics</i>	05/2013
<ul style="list-style-type: none">• GPA: 3.8 / 4.0; <i>Cum Laude</i>• Economics Departmental Honors• Jonathan Throne Kopit Memorial Prize in Logic and Rhetoric• Selected Coursework: Graduate Microeconomics, Advanced Econometrics, Advanced Macroeconomics, Real Analysis I-II, Data Structures and Algorithms in C	

SELECTED PEER-REVIEWED PUBLICATIONS AND MANUSCRIPTS

Differentially Private Double Auctions	Ongoing
<i>Diana, Elzayn, Kearns, Roth, Sharifi-Malvajerdi, Ziani</i>	
Competition, Regulation and Error Inequality in Data-Driven Markets	ACM FAT* 2020
<i>Elzayn, Fish (Oral and poster presentation at NeuRIPS 2019 AI for Social Good Workshop)</i>	
The Price of Privacy in the Keynesian Beauty Contest	EC 2019
<i>Elzayn, Schutzman</i>	
Hidden Information, Teamwork, and Prediction in Trick-Taking Card Games	RLDM 2019
<i>Elzayn, Fereydounian, Hayhoe, Kumar</i>	
Fair Algorithms for Learning in Allocation Problems	ACM FAT* 2019
<i>Elzayn, Jabbari, Jung, Kearns, Neel, Roth, Schutzman</i>	

WORK EXPERIENCE

Microsoft Research	Montreal, QC
<i>Research Intern</i>	06/2019-2019
<ul style="list-style-type: none">• Combined learning theory with industrial organization to model data-driven markets and to characterize group-wise error inequality and firms profits under competition and regulation	
Two Sigma Investments	Philadelphia, PA
<i>Consultant (External)</i>	02/2019-05/2019
<ul style="list-style-type: none">• Created, cleaned, and validated new feature set predictive of returns from SEC data, used econometric techniques to test for statistical and economic significance, and calculated evaluative metrics on strategy	
TGG Group (The Greatest Good)	Chicago, IL
<i>Senior Associate, Associate</i>	09/2013-04/2016
<ul style="list-style-type: none">• Used quasi-experiment and differences-in-differences framework to estimate price elasticity of demand for financial advising. Created sampling and two-stage regression process to overcome computational constraints on large dataset and estimate fixed effects. Identified evidence of gaming behavior induced by discontinuous marginal incentives (with Steve Levitt)• Computed bootstrapped test statistics via random assignment of placebo treatments to mitigate effects of auto- and spatial correlation on standard errors and estimate price elasticity for large credit card acquirer. Designed randomized control trial protocol (with Chad Syverson)	
<i>Summer Associate</i>	06/2012-08/2012
<ul style="list-style-type: none">• Built linear regression model trained on SEC filings to identify firms likely committing accounting fraud	

MISCELLANEOUS

Citadel Datathon: 2nd Place finish 2019 East Coast Regional
Languages: Python, R, Matlab, SQL, Stata, SAS | English (native), Arabic (intermediate), Spanish (proficient)
Interests: Fencing, Muay Thai, Mountaineering, Oud