SUPROTEEM SARKAR

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December 9, 2019

NBER Behavioral Macroeconomics Boot Camp Organizers
National Bureau of Economic Research

Dear NBER Behavioral Macroeconomics Boot Camp Organizers:

I am applying to the NBER Behavioral Macroeconomics Research Boot Camp to build on my research interests in behavioral macro-finance, engage with leading faculty, and meet with and learn from other students in the field. At the tutorial, I hope to build a more comprehensive knowledge of the state-of-the-art in the discipline and work toward conducting meaningful research in the space.

I am currently enrolled in the PhD program in Economics at Harvard, where I am supported by an NSF Graduate Research Fellowship. I also graduated with a Bachelor's in Computer Science (with a focus on Behavioral and Cognitive Science) and a Master's in Applied Mathematics from Harvard. My attached essay and CV list my previous and future research interests. My reference Is Andrei Shleifer (shleifer@fas.harvard.edu)

I strongly believe that taking part in the NBER Behavioral Macroeconomics Tutorial will be instrumental in helping me develop as a researcher in the field. The content presented at the conferences has a strong overlap with my interests and future research goals, and I am very enthusiastic about the opportunity to interact with and learn from other researchers in the discipline moving forward. Thank you for your consideration.

Sincerely,

Suproteem Sarkar

Suproteem K. Sarkar

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Education

Ph.D. Economics, Harvard University, 2019 - present.

Coursework: Behavioral Economics, Asset Pricing, Corporate Finance, Market Design, Microeconomics (waived), Macroeconomics (waived), Econometrics, Robust Machine Learning, Probabilistic Machine Learning.

Fields: Finance, Theory. Distribution: Behavioral.

NSF Graduate Research Fellowship.

S.M. Applied Mathematics, Harvard University, 2019.

A.B. Computer Science, *summa cum laude*, Harvard University, 2019.

Minor: Global Health and Health Policy
Certificate: Mind/Brain/Behavior
GPA 3.97/4.00, Phi Beta Kappa.

Research

Working Papers

Finding Equilibria in Auctions with Spite (with Amil Merchant and Daniel Giebisch).
We model the impact of spiteful behavior on auctions, and derive optimal bidding strategies and revenue under these considerations. Additionally, we establish a computational framework that could prove useful for finding optimal strategies in more complex behavioral settings.

Measuring Sophistication, Behavior, and Learning in Bargains
I analyze behavioral elements of bargaining interactions, and find how seemingly spurious differences in the dollar amount of an offer can impact the success of a bid. I also document what characteristics help bidders become more sophisticated over time and develop skill measures using rich data.

Papers

Constitutional Dimensions of Predictive Algorithms in Criminal Justice (with Michael Brenner, Jeannie Suk Gersen, Michael Haley, Matthew Lin, Amil Merchant, Richard Jagdishwar Millett, Drew Wegner)

Forthcoming, *Harvard Civil Rights-Civil Liberties Law Review*, 2019.

Universal Causal Evaluation Engine (with Alexander Lin and Amil Merchant).

Published in *Proceedings of Machine Learning Research*, 2019.

Presented at *ACM KDD Workshop on Causal Discovery*, Ancorage, 2019.

Robust Classification of Financial Risk (with Kojin Oshiba, Daniel Giebisch, and Yaron Singer).

Presented at *Neural Information Processing Systems, Workshop on AI in Financial Services*, Montréal, 2018.

Towards Autonomous Phytopathology (with Jnaneshwar Das, Reza Ehsani, and Vijay Kumar).

Presented at *IEEE International Conference on Robotics and Automation*, Stockholm, 2016.

Academic Awards

Finalist, Rhodes Scholarship 2019

Fellow, NSF Graduate Research Fellowships Program 2018

Fellow, Harvard Technology in the World 2018

John Harvard Scholar (top 5% of class) 2017, 2018

Fellow, Harvard College Research Program 2016

Fellow, Harvard Program for Research in Science and Engineering 2016

Presentation, "Swarm Locomotion: Control Rules for Self-Organized Structure Formation"

Teaching and Advising

Non-Resident Tutor, Lowell House 2019 - present

Teaching Fellow, Artificial Intelligence (CS 182), with Scott Kuindersma 2018

Peer Concentration Advisor, Harvard Computer Science Department 2018 - 2019

Peer Advising Fellow, Harvard Advising Programs Office 2016 - 2019

Advising Lead, Harvard Undergraduate Applied Math Society 2016 - 2019

Employment

Software Engineer Intern, Google 2018

Presentation, "Deep Survival Analysis on Rich Data for Major Cardiovascular Event Prediction"

Software Engineer Intern, Microsoft 2017

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suproteemsarkar{@g.harvard.edu, .github.io} • DECEMBER 9, 2019

I am applying to the NBER Behavioral Macroeconomics Research Boot Camp to build on my research interests in behavioral macro-finance, engage with leading faculty, and meet with and learn from other students in the field. At the tutorial, I hope to build a more comprehensive knowledge of the state-of-the-art in the discipline and work toward conducting meaningful research in the space.

I am currently enrolled in the PhD program in Economics at Harvard, where I am supported by an NSF Graduate Research Fellowship. I also graduated with a Bachelor's in Computer Science (with a focus on Behavioral and Cognitive Science) and a Master's in Applied Mathematics from Harvard.

My research interests lie in two broad areas—1. The application of neuroscientific and psychological insights to address macroeconomic and financial questions, and 2. The use of machine learning and big data to bring a more empirical grounding to economic models.

My graduate coursework has encompassed Behavioral Economics, Macroeconomics, Finance, and Market Design, and I have also completed foundational and topic coursework in the Neuroscience and Psychology departments, as well as graduate coursework in Machine Learning. While I have been enrolled in the PhD program for one year, I will be finishing my Second Year course requirements in Fall 2019, as I started my graduate economics coursework during my master's. My fields are Theory and Finance, and my distribution is Behavioral. Outside my coursework, I participated in the Sloan-Nomis Summer School on the Cognitive Foundations of Economic Behavior and the Yale Summer School in Behavioral Finance.

My previous work with a behavioral focus was targeted more toward finance and market design, while my more recent work has sought to address more macro-finance relevant questions. One of my earlier projects, "Finding Equilibria in Auctions with Spite," studied how psychological biases impact auction behavior and outcomes, and another, "Measuring Sophistication, Behavior, and Learning in Bargains," empirically studied behavioral phenomena in bargains. Another project, "Robust Classification of Financial Risk" (*Neural Information Processing Systems 2019, Finance Workshop*), examined how strategic agents with limited capacities could influence financial systems. More recently, I have been studying the effects of limited information on macroeconomic models.

My previous work in the machine learning space was more technical in nature, while my recent work seeks to apply these insights to empirical questions within the behavioral macro-finance space. One previous project, "Universal Causal Evaluation Engine" (*Proceedings of Machine Learning Research*, 2019), develops methods for increasing the consistency of machine learning-informed causal inference research. I have also studied risk assessment technologies in criminal justice from a law and economics perspective ("Constitutional Dimensions of Predictive Algorithms in Criminal Justice," forthcoming in *Harvard Civil Rights-Civil Liberties Law Review*, 2019). Now, my research is building on my machine learning experience to measure expectations using unstructured text data.

I strongly believe that taking part in the NBER Behavioral Macroeconomics Research Boot Camp will be instrumental in helping me develop as a researcher in the field. The content presented at the conferences has a strong overlap with my interests and future research goals, and I am very enthusiastic about the opportunity to interact with and learn from other researchers in the discipline moving forward.

I am thankful for the support of a National Science Foundation Graduate Research Fellowship for some of the research discussed in this application.

Gmail by Google

Elisa Pepe <epepe@nber.org>

joint letter for NBER Behavioral Boot Camp

Shleifer, Andrei <shleifer@fas.harvard.edu> Wed, Dec 4, 2019 at 7:00 AM
To: Elisa Pepe <epepe@nber.org>
Cc: Yuriy Gorodnichenko <ygorodni@econ.berkeley.edu>

Dear Elisa and Yuriy,

This is a brief joint letter for 6 Harvard Ph.D. students whom I work closely with applying for the Behavioral Macro bootcamp. They are all part of a group I am advising in this space, and they work together, come to same informal group meetings, and are generally part of a small community. They are also all amazingly good.

I would divide them into the "older" thesis writing category, and the "younger" starting out category, although even people in the younger category are actively doing research.

Older category includes Francesca Bastianello, Paul Fontanier, and Peter Maxted. All three are very talented and technically strong, all have completed first rate papers. I think all three are on the market next year, and all were in the very final few for the Sloan pre-doc last year (Francesca got it). (I think they may also all be getting letters from same people who are recommending them for pre-docs.) So I think at this point you are familiar with all of them.

Let me write two sentences about each of the other three -- all of whom I have known for some time because all three were Harvard undergraduates.

Spencer Kwon is a G2, and a very rare person I have seen as a Ph.D. student who has the intellectual ambition and potential to do transformative work. If there is a limit on how talented he is, I have not detected it. I can tell many stories, but this is not the place. Mike and Andrew can provide first hand testimony from the Sloan-Nomis camp.

Johnny Tang is a G2. He is specializing in finance, was at Nick Barberis camp last summer (Nick loved him), has fantastic empirical skills and is doing incredibly well in the program. He is working on a very exciting project with Spencer. He also happens to be just a great person, totally beloved by everyone in his class (it is a Canadian effect, I suppose).

Suproteem Sankar is a G1. He comes with a Computer Science background, went to Sloan Nomis like Spencer before starting grad school, seems to have placed out of most of G1 classes even though he did not major in economics as an undergraduate, and is figuring out what he wants to do. I recently saw his resume (he is applying for the Soros fellowship for first generation americans) and was quite stunned by his accomplishments, which he had not told me about. He is extremely bright and is looking for what he wants to do. I would love to draw him into this field -- his potential is enormous.

I hope this is helpful.

Warm regards,

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