APRIL BURRAGE
UNIVERSITY OF MASSACHUSETTS AMHERST | 773-623-9345 | ABURRAGE@UMASS.EDU

Recommendation Letter Writer:
Dr. Ina Ganguli
Associate Professor of Economics
University of Massachusetts-Amherst

January 19, 2022
NBER Innovation Research Boot Camp

To Whom it May Concern:

I am applying to attend the 2022 NBER Innovation Research Boot Camp (IRBC). I am a fourth-year PhD candidate in economics at University of Massachusetts Amherst (UMass). My recommendation letter writer is Dr. Ina Ganguli, an Associate Professor of Economics at UMass, who is one of my dissertation advisors and whose primary research field is the economics of science and innovation.

The IRBC lectures and attending the NBER Summer Institute Innovation Policy will improve my dissertation and strengthen my research agenda. My dissertation research explores how innovative policies at the national and state level impact the participation of women and minority owned businesses in innovation. The IRBC also provides me with the ability to network with other PhD Students with similar research interests which is extremely important for long term success.

In addition to my dissertation project, I have worked on several research projects in the area of innovation. I have worked with Dr. Ina Ganguli on two research projects that focus on gender and racial differences among future inventors to understand how these differences in inventive activities are emerging for students who have already shown evidence of their inventiveness. I am a research fellow for Second Nature, where I work with Dr. Anna Goldstein on a project funded by the Sloan Foundation, to examine how the United States can harness opportunities for more impactful academic research in climate change innovation. My work for these projects includes literature review of existing papers, data management, quantitative, and qualitative analysis in Stata and thematic qualitative coding of text. I have completed the PhD-level econometrics and microeconomics sequence as well as additional labor economics courses: Empirical Methods of Labor Economics and Labor Economics.

My research interests and experience position me well to apply what I learn at the IRBC to my current and future research of the economics of innovation and innovation policy.

Sincerely,

April Burrage

April T. Burrage

Email: aburrage@umass.edu
Website: http://www.aprilburrage.com/

Education

Ph.D Economics, University of Massachusetts Amherst, 2018 - present

M.A., Economics, Roosevelt University, 2018

B.S., Marketing, North Carolina A&T State University, Summa Cum Laude, 2013

Research Fields

Labor Economics, Political Economy, Economics of Innovation

Working Papers

"Inclusive Pathways To Invention: Understanding Racial And Ethnic Gaps Among Collegiate Student Inventors" with Janell Ciemiecki, Stephanie Couch, and Ina Ganguli, *revise and resubmit Technology and Innovation*

"Cultivating Future Inventors: The Lemelson-MIT Student Prize" with Ina Ganguli and Stephanie Couch.

"Increasing Gender Diversity in Science-Based Entrepreneurship: Social Impact Framing and the NSF I-Corps Program" with Ina Ganguli and Nilanjana Dasgupta.

Research Papers in Progress

"Racial Equity in Technology Entrepreneurship" with Rachel Atkins.

Research Experience

Research Assistant at The Center for Critical Race and Digital Studies
Research Supervisor: Dr. Rachel Atkins

Research Assistant at The Lemelson-MIT Center
Research Supervisor: Dr. Ina Ganguli

Research Assistant at UMASS National Science Foundation I-Corps
Research Supervisor: Dr. Ina Ganguli

Teaching Experience

Introduction to Macroeconomics, Fall 2018 - Spring 2020

Political Economy of the Environment, Fall 2020

Fellowships, Grants, Honors, and Awards

NSF ELEVATE Fellow, 2022

Second Nature Research Fellow, 2021

NBER Summer Institute (invited attendee) 2020, 2021

NBER Entrepreneurship Boot Camp (invited attendee), 2021

Institute for Research on Poverty Dissertation Workshop (invited attendee) , 2021

Research Fellow at Second Nature, 2021

American Economic Association Summer Program, July 2020

Research, Enhancement, and Leadership Fellow at UMASS Amherst, 2018-2022

Seminars and Conference Presentations

Workshop on Entrepreneurial Finance and Innovation (WEFI) Fellow (invited attendee) , 2021-2022

The Workshop on Racial Equity in Technology Entrepreneurship, 2021

Institute of Diversity Sciences, 2021

Stanford Graduate School of Business Rising Scholars Conference, 2020

Boston University Women in Economics Workshop, 2020

International Association of Feminist Economics, 2019

Technical Strengths

Statistical Packages: Stata (Advanced), R (Intermediate)

Membership/Affliations

American Economic Association, Graduate Women in STEM, National Economic Association

(Please see next page for a list of current and completed coursework)

Current Coursework

ECO 690P Public Engagement and Communication

Completed Coursework

ECON 700 Microeconomic Coordination and Conflict

ECON 701 Microeconomic Theory

RES-ECON 702 Econometric Methods

ECON 703 Introduction to Economic History

RES-ECON 703 Advanced Econometrics

ECON 705 Macroeconomic Theory I

ECON 708 Political Economy I

ECON 709 Political Economy II

ECON 751 Math Methods for Economics

ECON 764 United States Economic History

ECON 781 Labor Economics

ECON 797LB Empirical Methods of Labor Economics

ECON 797P Political Economy of Public Health

ECON 797UD Political Economy of Urban Development

III. Why I would like to attend the 2022 NBER Innovation Research Boot Camp

NBER Innovation Research Boot Camp. As a PhD Candidate that is developing my prospectus, I intend to apply what I learn from the NBER Innovation Research Boot Camp (IRBC) to improve my dissertation and strengthen my research agenda. The innovation research field is small compared to other economics research fields therefore I have not been afforded many opportunities to network with similar research interests. I was able to connect with other PhD students interested in the economics of innovation at the 2021 NBER Entrepreneurship Research Boot Camp and the monthly Workshop on Entrepreneurial Finance and Innovation (WEFI) fellows meeting. The IRBC would provide the exposure and ability to network with PhD students and researchers in economics and related disciplines with similar research interests. Expanding my network with other PhD students may lead to future collaborations and co-authorship opportunities that would increase my chances of having a productive economic research career.

Dissertation Research. My dissertation research explores how innovative policies at the national and state level impact the participation of women and minority owned businesses in innovation. My dissertation topic combines my interests in understanding factors that foster participation in the invention process and the institutional structures that hinder successful participation from underrepresented groups. My theoretical framework focuses on state governments as key actors in providing public support for innovative activities to improve economic growth and high growth businesses to their state. My empirical approach will estimate the causal effects of state innovation-driven incentives, particularly their impact on federal innovation funding of women and minority owned businesses. I will focus on the federal Small Business Innovation Research program, a highly competitive grant that provides financial support of technological innovation that has a potential for commercialization for startups and small businesses. The public sector is a vital sector of supporting early stage innovation and examining state incentives and its impact on federal innovation funding is an understudied topic. The boot camp would help me expand my knowledge of various research

methodologies and literature in the field that would contribute significantly to my dissertation writing and future research.

Current Related Research. I am currently working on several research projects in the area of innovation in addition to my core dissertation research. I worked with Dr. Ina Ganguli on two research projects that focus on gender and racial differences among future inventors to understand how these differences in inventive activities are emerging for students who have already shown evidence of their inventiveness. We collaborated with the MIT-Lemelson (LMIT) center to examine if outreach increases women's interest in innovation development programs and if gender and team composition correlate with the category of the invention. We are currently preparing a manuscript to submit to a journal.

Our second analysis used archival data from the LMIT Student Invention prize to examine gender and racial differences in the types of potential inventions and if there are differences in the type of institutions that support underrepresented groups' innovative ideas. We found that underrepresented men are more likely to focus on consumer related inventions while both non - underrepresented and underrepresented are more likely to invent in healthcare related categories. We submitted a manuscript based on this analysis to the Technology and Innovation Journal.

Currently, I am a research fellow at Second Nature on a project funded by the Sloan Foundation. I work with Dr. Anna Goldstein to examine how the United States can harness opportunities for more impactful academic research in climate change innovation. Our research methodology consists of a mixed methods approach where we use quantitative data on recent federal academic research in climate change innovation grants and qualitative data on perspectives of congressional staff members and private sector workers involved in climate solutions research. We find that the most promising path for equitable climate solutions lies with partnerships between academic and non-academic experts, including members of vulnerable communities and critical climate solutions industries. This research project will be developed into a report for circulation.

UNIVERSITY OF MASSACHUSETTS
AMHERST

Crotty Hall
412 North Pleasant Street
Amherst, MA 01002-2900

Economics Department

January 19, 2022

Dear Selection Committee:

I would like to highly recommend April Burrage for the NBER Innovation Research Boot Camp 2022. I have known April since the spring of 2019 and I am currently one of her dissertation advisors. She was also a student in my Labor Economics PhD course in the Spring of 2020. Additionally, we have been working together on two research projects focused on understanding gender and racial diversity among inventors and entrepreneurs.

April's dissertation addresses an extremely important and timely topic concerning the role of the public sector in supporting innovation activities, and particularly the role of U.S. states. April plans to focus initially on understanding the impact of state policies on the federal funding received by entrepreneurs, and especially women and minority-owned businesses, drawing on the Small Business Innovation Research (SBIR) program. In the future, she also plans to pursue research to understand how differential participation in employment and entrepreneurship in innovative, high growth sectors is contributing to racial disparities in wealth and employment.

I am confident that April has the skills and initiative to undertake her dissertation research successfully. From my Labor Economics course and other courses in our department, April has a solid foundation in the empirical and theoretical labor literature. In my class, April was one of the most active participants in class discussions and was diligent in mastering the methods and theories we covered. Attending the IRBC this summer at this stage in her dissertation research will very valuable in giving her a stronger foundation in the economics of innovation literature.

I have been able to work closely with April for almost 2 years and have observed her careful data analysis skills and her dedication to research and issues of diversity. In one project, April has worked with me and an interdisciplinary team of UMass faculty working as a research assistant on the NSF Innovation Corps (I-Corps) site at UMass, the NSF's entrepreneurial training program for science and engineering faculty and doctoral students. Our research is focused on understanding whether it is possible to bolster diversity and inclusion of women and underrepresented minorities in the program, and more generally in science-based entrepreneurship and commercialization activities by studying which types of messaging can diversify student recruitment into the I-Corp program. Using a randomized controlled trial, we have been experimentally testing whether randomly varying the framing of the I-Corp program in outreach emails to potential participants in terms of either an opportunity to use science to tackle a social challenge, or as an opportunity to translate science into business projects, can increase the participation of women and minorities in the program.

The University of Massachusetts is an Affirmative Action/Equal Opportunity Institution

In another project that we began more recently, April and I have been working with staff at the Lemelson-MIT Program (L-MIT). We are collaborating on research related to the L-MIT Student Prize, which honors a small number of promising student inventors in the United States each year, to understand how the program's pre-competition efforts to attract applicants can be used to increase diversity in the applicant pool. Again, April has been working on analyzing a variety of datasets and has worked closely with the program staff.

I anticipate that both projects will lead to coauthored papers with our collaborators. For both projects, April had to work with many different data sources that came in many different formats, and she has been able to do this work efficiently and carefully. These experiences will be extremely valuable for her dissertation work, which also involves combining several micro-level datasets. These experiences have also given her very valuable exposure to the real-world issues being discussed about innovation and entrepreneurship policy and efforts to diversify who is involved in these activities.

April is very committed to diversity, in both her research and involvement in other activities on campus. In addition to the focus of her research, she is active in efforts to increase diversity in STEM fields in her extra-curricular activities. For example, she is an active member the UMass Graduate Women in STEM organization, which aims to broaden the participation and increase the retention of women in Science, Technology, Engineering, Mathematics.

I believe she is an excellent candidate for the IRBC and would take full advantage of this unique opportunity. Please do not hesitate to contact me if I can provide additional information. I can be reached by email at iganguli@umass.edu or by phone at 617-230-2045.

Sincerely,



Ina Ganguli
Associate Professor of Economics
Associate Director, Computational Social Science Institute
University of Massachusetts Amherst