William Miles

NBER Innovation Research Boot Camp 2025: Application Packet

February 4th, 2025

Dear Kevin Bryan, Ina Ganguli, and Kyle Myers,

I am writing to apply to the NBER Innovation Research Boot Camp 2025. As a third-year PhD student in the Strategy department at Duke University's Fuqua School of Business, my research focuses on the economics of innovation, particularly how incentives, competition, and market structure shape technological progress. Given my research interests, this boot camp presents a unique opportunity to engage with leading scholars in the field and to develop new skills for studying innovation.

Attending the boot camp would allow me to gain exposure to new methodologies and frameworks. Additionally, I am eager to connect with a cohort of early-career researchers who share my interest in innovation policy and firm dynamics. This experience would significantly enhance my research trajectory.

My recommendation letter writer is Wesley Cohen.

Thank you for taking the time to review my application. I look forward to hearing from you.

Yours Sincerely,

William Miles

Duke University, Fuqua School of Business

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William Miles

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Education

The Fuqua School of Business, Duke University

Ph.D. in Business Administration (Strategy) 2027
Advisors: Wesley M. Cohen, Ashish Arora, Sharique Hasan

Rice University

B.A. Economics and Management, with Honors 2018–2022

Research

Working papers

1. "If you had only one shot: Scale and herding in innovation experiments", with A. Arora and S. Hasan
2. "Blockbusters, Sequels, and the Nature of Innovation", with W. Cohen, M. Higgins, and Y. Shibuya
3. "Opinion Trumps Fact: Entrepreneurship and Competition in Political News", with A. Chatterji, S. Hasan, and D. Shvadron

Under review

1. "From Founders to Funders: Generalized Reciprocity, Embeddedness, and Entrepreneurs' Participation in Angel Investing", with A. Piazza

Awards, Fellowships, and Honors

Duke University

Doctoral Fellowship 2022–2027

Rice University

The Peter Mieszkowski Prize for Honors Program Research 2022
Honors in Economics 2022
Rice Undergraduate Scholars Program 2021–2022
International Rice Grant 2018–2022
President's Honor Roll 2020

Cases

William Miles, Caleb Walker, and Ronnie Chatterji. "Pasqal's Dilemma" 2024

Teaching Experience

Duke University

Teaching Assistant for Entrepreneurial Strategy (MBA)	2025–present
Instructor for PhD Summer Bootcamp in Statistical Programming	August 2024
Teaching Assistant for Leading Business in a Complex World (MBA)	August 2024
Teaching Assistant for Strategic Implementation (MBA)	2024–present
Teaching Assistant for Business and Common Purpose (MBA)	2024–present
Teaching Assistant for Core Strategy (MBA, MMS, and EMBA)	2023–present

Rice University

Teaching Assistant for BUSI 343 Financial Management (undergraduate)	2022

Invited Presentations (Scheduled*)

Academy of Management Symposium: "Emergence and Growth Strategy of Entrepreneurial Firms: Evidence Based on Large-Scale Data"	August 2024
Doctoral Consortium on Emerging Markets, Rice University	May 2024

Relevant Positions

Jones Graduate School of Business, Rice University

Research Assistant for Prof. Kate Odziemkowska	2022
Research Assistant for Prof. Alessandro Piazza	2020-2022

Service

Ad hoc reviewer for *Organization Science*	2024–present
Ad hoc reviewer for *Management Science*	2023–present

Programming and Software Skills

Proficient: R, Python, Stata, LaTeX, Unix, SQL, Google Big Query
Novice: Git, MongoDB, Javascript, HTML, CSS

Other Awards

DipABRSM Saxophone (Distinction)	2018

Last updated: February 4, 2025

List of all completed PhD courses:

- Economics of Innovation
- High-Technology Entrepreneurship
- Topics in Strategy
- Microeconomics
- Causal Inference
- Introduction to Econometrics
- Predictive Modelling
- Social Networks
- Behavioural Perspectives on Strategic Management
- Behavioural Decision Theory

Current and future research. My research explores how incentives, competition, and market structure shape experimentation and the direction and nature of technological innovations.

With Wesley Cohen, Matthew Higgins, and Yoko Shibuya (*Working Paper*), I argue that firms with especially high-selling, "blockbuster" products are more likely to pursue incremental innovations related to those products, even when controlling for overall firm size. We propose that, above some sales threshold, demand stickiness—the expectation that future demand will mirror past demand—drives this pattern. We test the empirical predictions from our model in the pharmaceutical industry, where we link the sales of individual products to the quantity and similarity of subsequent development projects within the same submarket. An important implication for the blockbuster model is that firms may forgo commercialization opportunities in promising markets, even when they have the necessary scientific capabilities.

With Ashish Arora and Sharique Hasan, I develop a simple model to show that markets dominated by a few large-scale experimenters (firms conducting multiple experiments) explore more diverse approaches than markets with many single-shot experimenters. Single-shot experimenters tend to converge on the most promising approach, while multi-experimenters are more likely to diversify to avoid the correlation inherent in pursuing multiple experiments within the same approach. Using pharmaceutical R&D data, we show that increasing the average number of experiments per firm by one unit raises target diversity by over three standard deviations. In turn, a one-standard-deviation increase from the mean in target diversity boosts the likelihood of at least one experiment reaching Phase 1 clinical trials by 25.9 percentage points.

With Ronnie Chatterji, Sharique Hasan, and Dror Shvadron (*Working Paper*), I examine how entrepreneurial entrants influence the strategies of incumbents in the American political news business. We find that new entrants produced more opinionated news content, prompting incumbents to adopt similar content strategies. These shifts triggered more hate speech on social media but failed to improve website traffic, highlighting the unintended consequences of media entrepreneurship.

Finally, I am in the early stages of working on my *solo* job market paper. When experiments fail, they leave unresolved whether the failure arose from a flawed hypothesis or poor execution. Yet firms look to competitors' experimental outcomes to update their expectations of market potential and probabilities of technical success. Thus, it is critical that these signals are accurate and informative, especially in industries marked by high technical and commercial uncertainty (i.e., quantum computing or nanomaterials), where firms often must commit to a specific technological approach at the outset. However, it is not obvious that firms would prioritize information value in their experiments. Under pressure from various stakeholders, firms may instead prioritize producing a positive signal at the cost of information value. In this paper, I plan to study this trade-off and its implications for the direction of technical advancement in breakthrough industries.

Reason for wanting to attend the boot camp. The boot camp offers a unique opportunity to engage with leading thinkers in the field of the economics of innovation and connect with like-minded early-career scholars. Exposure to new ideas and methodologies outside of my department at Duke would enrich my research.

Wesley M. Cohen
Snow Family Professor of Business Administration
Professor of Economics, Management and Law

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February 3, 2025

Dear NBER Innovation Research Bootcamp Application Evaluation Committee:

I would like to enthusiastically recommend Will Miles for the NBER Innovation Research Bootcamp. I know Will well. He has been a student in my Economics of Innovation PhD seminar, is an advisee of mine, and am currently working with him on a paper.

Will is a third year PhD student in the Strategy Area at the Fuqua School of Business, Duke University, with a main interest is the economics of innovation. He is one of the best students that have come through the program. His energy, initiative, creativity, empirical skills and commitment to scholarly inquiry are impressive. He also has already dug deeply into empirical research on two major projects. One is a paper with Ashish Arora and Sharique Hasan, showing, rather counter intuitively, that innovation-intensive markets dominated by a few large firms will tend to pursue more diverse approaches to innovation than those dominated by numerous smaller firms. In a second project with Matt Higgins, Yoko Shibuya and myself, we're examining the impact on the direction of innovation when firms have a product with outsized sales (a "blockbuster").

I believe Will would benefit enormously from the Bootcamp, and I believe the Bootcamp faculty and fellow students will benefit from his participation.

Let me know if you have any further questions.

Thank you.

Best regards,



Wesley M. Cohen