Application to the NBER Research Entrepreneurship Research Boot Camp

Sandy Yu
NYU Stern School of Business

NEW YORK UNIVERSITY
NYU STERN
LEONARD N. STERN
SCHOOL OF BUSINESS

DEPARTMENT OF ECONOMICS
NYU STERN SCHOOL OF BUSINESS

Kaufman Management Center
44 West Fourth Street, Suite 7-79
New York, NY 10012-1126
P: 212-998-0062
F: 212-995-4218

JOHN ASKER
ASSOCIATE PROFESSOR
jasker@stern.nyu.edu

Professor Thomas Hellmann
University of British Columbia
Sauder School of Business & NBER

April 2, 2011

Dear Professor Hellmann,

It is my pleasure to recommend **Sandy Yu** for the NBER Entrepreneurship Research Boot Camp. Sandy is an extremely promising PhD Student in Economics/Strategy at NYU Stern. I have known her both as the PhD Advisor for our department and through her participation in departmental seminars.

Sandy has expressed tremendous enthusiasm for this program and I am delighted to offer a letter in full support. I am confident that Sandy would benefit enormously from this experience and especially at this stage of her PhD studies. Since shes been at NYU, Sandy has demonstrated a serious, scholarly interest in entrepreneurship research, which makes her a good fit for the NBER Entrepreneurship Research Boot Camp. In addition to here academic interest, she has also experienced entrepreneurship firsthand at a Silicon Valley start-up called Ooma,Inc, where she was involved with aspects of funding, marketing, user studies, and product launch. Furthermore, drawing upon her background in engineering and working in industry, she is already asking questions which will likely lead to a potential dissertation research topic. Sandy has a clear roadmap on how she plans to acquire the skills and knowledge to conduct research in entrepreneurship. In addition to completing the core courses in economics, industrial organization and applied econometrics, Sandy has been expanding her knowledge in empirical finance and strategy. I also understand that she is in the process of collecting a dataset that will hopefully be the start of a very productive summer.

The boot camp would provide an opportunity and environment for Sandy to further explore other areas of entrepreneurship and immerse herself in the community of scholars engaging in relevant research. The boot camps depth and breadth would inevitably make an impact for Sandy at this critical point in her PhD program. I also have no doubt that Sandy would contribute tremendously to the program and engage in insightful discussions with other participants.

Past students of mine have attended the workshop (e.g. Hong Luo, now at HBS Strategy) and have said how helpful it was in formulating their research ideas. Sandy would benefit similarly and exhibits similar research potential.

Sincerely,



John Asker
Assocate Professor of Economics, NYU Stern & NBER
Editor, *Journal of Industrial Economics*

New York University
Stern School of Business
7-160, 44 West Fourth Street
New York, NY 10012

March 20, 2012

Thomas Hellmann
University of British Columbia
Sauder School of Business
2053 Main Mall, Vancouver, BC
Canada V6T 1Z2

Dear Professor Hellmann,

I am writing to apply to the National Bureau of Economic Research Entrepreneurship Research Boot Camp. I am currently a second-year doctoral student in Strategy/Economics at the Stern School of Business at New York University. I have a strong interest in entrepreneurship and after conversations with my advisor, John Asker, and previous participants, such as Hong Luo, I think that participation in this boot camp will benefit me greatly as I transition out of coursework into starting my own research project this summer.

As noted in my curriculum vitae, I have 4 years of experience working in different types of firms. I became interested in entrepreneurship, initially from the engineering aspect, but it quickly developed into an interest in innovation, product commercialization strategy, and venture capital. Before starting my PhD program, I was a Stanford Mayfield Fellow and worked at an early-stage startup, Ooma. At Ooma I was exposed to VC pitches, board meetings, and contributed to the marketing and product strategies. It was during that time that I became curious about innovation in start-ups. Later I decided to experience the opposite end of the spectrum and joined Microsoft as a program manager for PowerPoint. There I was able to apply what I had learned at Ooma, but the contrast between the two environments prompted more unanswered questions and eventually motivated me to pursue research in entrepreneurship.

I am interested in early-stage startups and how they scale up into larger companies. In particular, I have numerous questions around technology commercialization and the market for ideas. I would also like to investigate further the impact of venture capital firms during the early and transitional stages of a start-up. Additionally, as an engineer by training, I have done research in an academic lab and a corporate research and development center. With a technical background and industry experience, my contribution can be particularly beneficial when considering the applicability of research questions, and bring a different perspective to the discussions. Most importantly, this boot camp is a great fit for me since I intend to approach entrepreneurship research from economics and finance disciplines. Participation would not only expose me to a breadth of current research, it would allow me to exchange ideas with other scholars to help me refine topics of my own.

I have enclosed my essay and curriculum vitae, and Professor Asker will send in a letter of recommendation. I have also included a letter I received last year encouraging me to re-apply this year. If you have any questions, please feel free to contact me. Thank you in advance for your time.

Sincerely,

Sandy Yu
(650) 279-5159
syu@stern.nyu.edu

From: Brett Maranjian <maranjian@nber.org>
Sent: Tuesday, May 03, 2011 12:35 PM
To: syu@stern.nyu.edu
Cc: jasker@stern.nyu.edu
Subject: NBER Entrepreneurship Research Boot Camp, July 2011

Flag Status: Flagged

Dear Sandy:
I am sorry to tell you that you have not been accepted to the 4th NBER Entrepreneurship Research Boot Camp. We had to reject many strong candidates. On behalf of the admissions committee, however, I would like to convey a special message to you. We noted that you were still in the early stages of your PhD. Should your interest in entrepreneurship research continue to develop in demonstrable ways, the admissions committee would like to encourage you to re-apply next year. We obviously cannot make any promises, but if you decide to re-apply, please make sure to mention this letter in your application. In the meantime we hope that your interest in entrepreneurship research will continue to grow.

Best regards,
Thomas Hellmann

My interest in entrepreneurship developed when I was an undergraduate at Stanford University. I was fascinated by the innovative nature of start-ups and how quickly they could change the competitive landscape of an industry. During the past five years, I have learned about implementing and executing great ideas through coursework, case studies, and work experience. However, I am increasingly curious about the impact of start-ups and what makes them successful. There are many aspects of entrepreneurship, and the reason that I decided to go back to graduate school is to explore the data and find some answers. The NBER Entrepreneurship Research Boot Camp caught my attention immediately and it will help me accelerate through the learning curve as I pursue my own research.

My first foray into entrepreneurship was the Mayfield Fellows Program. During the nine-month work-study, I learned about managing technology ventures through seminars and case studies, met with entrepreneurs and venture capitalists, and worked at a start-up, Ooma. There is an array of factors –the idea, the team, funding, timing, and execution—that could determine whether a start-up succeeds or fails, and my goal was to get involved with how these decisions were being made at Ooma. Ooma was trying to enter the telecommunications market—a sufficiently crowded space that already had dominant players, so it seemed like an impossible feat. As part of this process, I sat in on VC pitches and board meetings with the CEO, worked with the VP of Marketing to understand the competitive landscape and positioning, and talked to beta users for feedback. My methodology for problem-solving built upon my research training at Stanford and Toshiba, and it proved to be very effective during my time there. This was my first exposure to non-engineering problems of a launching a product, and given the ad-hoc nature of young start-ups, there were harsh realities to face. Why would a consumer switch to our product? What is the optimal pricing plan? How and when would we be profitable? To me, innovation was the engine keeping the start-up afloat since there was a constant flow of new ideas that we could execute upon quickly. The start-up environment fostered innovation and it was the main advantage over incumbent market leaders. My curiosity around innovation actually prompted me to enter into a completely opposite environment to see the other side of the story.

I was intrigued by questions about innovation and entrepreneurship, and decided to work at Microsoft to see *how* or even *if* these factors played a role in an incumbent's environment. What I wanted to learn at Microsoft was not just how to foster innovation, but more crucially, how to sustain innovation to keep an established product such as Microsoft Office competitive. As a program manager for PowerPoint, the questions I dealt with on a daily basis were not completely different from the ones at Ooma. On a micro level, each of my projects was similar to running a start-up: I worked with a small team, pitched ideas to get resources, planed milestones, and eventually launched a compelling feature to include in the final product. On a macro level, there were logistics and hierarchies to navigate, and many times it hindered progress. I wondered about: *How do incumbent firms such as Microsoft compete with new entrants that are more nimble and have shorter product cycles? Can new ideas be developed and sustained in this environment?* These questions where complementary to the ones I had at Ooma, which involved sustaining innovation instead of creating innovation in different environments and different stages of a firm. Given these experiences, I understand how ideas are created, how products are launched, and how revenue is generated in these extreme environments, but there is a lot of mystery around what happens in between.

This past year my focus has been on acquiring the skills and knowledge to conduct research in entrepreneurship. Entrepreneurship is an interdisciplinary field, and especially after surveying existing literature, I recognized the need to build on top of my economics foundation and branch out to relevant areas including finance, industrial organization, strategy, and organization theory. Accumulating knowledge in several fields has motivated me to think about research questions in different contexts, and this has been hugely beneficial as I brainstorm for ideas. In addition, I have further developed skills for empirical analysis and implementing algorithms. This has allowed me to experiment with new ideas quickly and effectively. Overall, I have a much better sense of what the interesting topics are, and combined with my practical skillset, I am well-prepared to analyze questions that are yet to be answered.

I am interested in early-stage start-ups and how they scale up into larger companies, from both strategic and financial perspectives. One topic I am currently investigating is the effect of recently-popular seed accelerators such as Y Combinator and TechStars. Much of the existing entrepreneurial finance literature addresses venture capital firms, but discussion of other sources of funding are lacking. Seed accelerators may play an important role in whether new ventures are able to secure follow-on funding. Accelerators distribute their financial resources across a cohort of start-ups, but it seems that their main value is offering mentorship and access to networks to the founding teams. Given the hit-or-miss nature of start-up investments, their impact on the performance of start-ups could simply be a function of minimizing risk rather than the ability to pick more promising ventures. I am in the process of collecting a dataset to analyze this phenomenon and hope to make significant progress in the upcoming months. Another area of interest is vertical markets and exclusive contracts, specifically the relationship between hardware, mobile platforms (iOS, Android), and application developers. The Android marketplace has low barriers to entry but requires developers to optimize for different hardware specifications. On the other hand, Apple has strict approval requirements for any application, but developers only have to optimize for the iPhone. Most developers these days will develop for the iPhone first, and then develop for Android to cover a larger share of the market, so there has to be another way for these platforms to compete. Furthermore, the platform choice extends beyond the mobile phone to tablet devices, so the potential network effect is greater. This is especially interesting given the shift of desktop software-oriented start-ups to mobile and social media in the recent years. These are just a sample of topics I plan to pursue further over the summer.

What makes entrepreneurship exciting is an inherent element of surprise and uncertainty, yet we are trying to find order in chaos by analyzing it through economics and finance. Having worked in an academic lab, international firm, start-up, and large corporation, I can draw upon these experiences as I think about research questions that are applicable in industries. There is a large gap between what is happening in the entrepreneurship ecosystem and the academic research that is being done. As someone who is just starting her academic career, I see this as a great opportunity for research innovation. My goal for this boot camp is to learn more about current research, exchange ideas, and contribute by bringing a fresh perspective. I am confident that participating in the NBER Entrepreneurship Research Boot Camp will provide great momentum as I start my own investigations, and I truly look forward to it.

Sandy Yu

Department of Economics
Stern School of Business
New York University
44 West Fourth Street, 7 FL
New York, NY 10012

138 Eldridge Street
Apartment 2D
New York, NY 10002
syu@stern.nyu.edu
(650) 279-5158

RESEARCH INTERESTS

Areas: entrepreneurship, business strategy, industrial organization
Topics: innovation and technology, start-up commercialization strategy, market for ideas

EDUCATION

9/10 - Present **New York University, Stern School of Business**, New York, NY
Ph.D. in Strategy/Economics (expected, 2015)

9/06 - 6/07 **Stanford University**, Stanford, CA
Master of Science in Electrical Engineering (degree conferred 2007)

9/02 - 6/06 **Stanford University**, Stanford, CA
Bachelor of Science in Electrical Engineering (degree conferred 2006)

4/06 - 12/06 **Mayfield Fellows Program**, Stanford, CA
Limited to 12 Stanford students. Nine-month work/study program designed to develop an understanding of the techniques for growing emerging technology companies and hands-on experience. Coursework in management of technology ventures.

4/05 - 9/05 **Stanford-Kyoto Center for Technology and Innovation**, Kyoto, Japan
Overseas program with intensive language study followed by internship at Toshiba.

RESEARCH EXPERIENCE

7/05 - 9/05 **Intern,** *Toshiba Corporate Research & Development Center*, Kanagawa, Japan
Investigated super-resolution reconstruction for digital camcorders. Participated in weekly meetings and helped to shape product specifications. Implemented reconstruction algorithm for testing, modification, evaluation, and successfully improved the performance of the system.

6/04 - 3/05 **Research Assistant,** *Science, Telecommunications, & Radioscience Lab*, Stanford, CA
Analyzed raw satellite data collected from NASA's Cassini satellite by developing software for efficient data processing. Evaluated radar data set, discovered new facts about Saturn's moon Phoebe, and verified previous estimations. Results were presented at departmental and university-wide symposiums.

PROFESSIONAL EXPERIENCE

8/07 - 6/10 **Program Manager**, *Microsoft Office PowerPoint, Microsoft Corp.,* Mountain View, CA
Designed and authored specifications for seven new features and product performance for PowerPoint 2010. Worked with developers and testers to implement features and executed against rigid timelines. Managed and prioritized trade-offs involving time, cost, and value proposition. Collaborated with cross-functional and partner teams to ensure consistency across Microsoft Office products. Consistently advocated customer needs to deliver best feature set.

6/06 - 4/07 **Marketing Associate**, *Ooma, Inc.,* Palo Alto, CA
Worked directly with the VP of Marketing and Director of Product Management at venture-backed startup in VoIP space. Developed presentations for Board of Directors and investors on marketing strategy. Conducted market research and competitive landscape analysis in both hardware and online service market. Managed collaboration with vendors, external-facing presentations, and market trends research.

PRESENTATIONS

2004 "Analysis of Phoebe Rotation Rate and Spectral Bandwidth based on Cassini Satellite Data," Symposium for Undergraduate Research in Progress, Stanford University
2004 Electrical Engineering Summer Research Poster Session, Stanford University
http://www.stanford.edu/group/radar/undergrads/sandy_reu.pdf

HONORS AND AWARDS

2007 - Present **Doctoral Fellowship**, NYU Stern School of Business
2006 **Dean's Office Award for Student Affairs/Engineering Diversity**, Stanford University
2005 **Lifetime Member**, Stanford University Cap and Gown Women's Honor Society
2005 **Bridging Scholar**, The Association of Teachers of Japan

LEADERSHIP

2009 **Committee Chair**, *Women at Microsoft Silicon Valley Chapter*, Mountain View, CA
Planned events for the DigiGirlz program, which exposes high school girls to opportunities in business and technology. Recruited speakers and mentors, and reached out to individual schools for participation.

9/04 - 6/07 **Co-President**, *Amelia Technology Literacy Group, Inc*., East Palo Alto, CA
Served on the executive team of international nonprofit dedicated to enhancing the quality and accessibility of primary education. Involved since the creation of the organization and helped with program development, including partnership with Teach for America. Recruited and hired marketing, fundraising, and program staff as organization expanded.

9/06 - 6/07 **Vice President, External Affairs**, *Stanford Consulting (SC),* Stanford, CA
Managed communication and programs between SC, external firms, and various student organizations. Coordinated workshops and panels for SC and Stanford community. Served as liaison for partnerships.

9/02 - 6/06 **Vice President, Membership**, *Society of Women Engineers (SWE)*, Stanford, CA
Coordinated between National SWE and Stanford SWE for national conference. Initiated chapter teams for regional competitions. Organized social events and increased

membership by 25%. Served in various board positions over four years, and currently involved as a professional SWE member.

ADDITIONAL INFORMATION

Languages: Native in Chinese and conversant in Japanese
Computer skills: C++, MATLAB, Stata, HTML, MS Word, Excel, PowerPoint

COURSEWORK

Microeconomics I and II (NYU Graduate School of Arts & Science)
PhD Seminar in Empirical Corporate Finance (NYU Stern)
Industrial Organization I (NYU Graduate School of Arts & Science)
Topics in Economic Theory and Empirical Methods in IO (NYU Stern)
Topics in Applied Microeconomic Theory: Industrial Organization (NYU Stern)
Applied Econometrics (NYU Stern)
Topics in Applied Microeconometrics (NYU Graduate School of Arts & Science)
Panel Data Analysis (NYU Stern)
Math for Economists I (NYU Graduate School of Arts & Science)
Real Analysis (Courant Institute of Mathematical Sciences)
Strategy I (NYU Stern)
Strategy II - Management (NYU Stern)
Organization Theory (NYU Stern)
Quantitative Models and Applications in Marketing (NYU Stern)

REFERENCES

John Asker
Associate Professor of Economics
Lenard N. Stern School of Business, New York University
Suite 7-79, 44 West Fourth Street, New York, NY 10012
(212) 998-0062
jasker@stern.nyu.edu

Heski Bar-Isaac
Associate Professor of Economics
Leonard N. Stern School of Business, New York University
Suite 7-73, 44 West Fourth Street, New York, NY 10012
(212) 998-0533
hbar-isa@stern.nyu.edu