Mastering the Masters Application

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Contents

Chapter 1

Introduction

Hey!

This is a collection of resources that I created while writing and after completing my graduate admissions work for quantitative finance, data science, and business analytics programs. I hope it can help guide you through the process. This guide's primary audience is current masters applicants, most specifically applicants for programs with an industry focus. Its secondary audience is applicants for more academic leaning graduate degrees. Finally, it can be used to bring additional clarity and context to the process for those considering applying to graduate school, professors, and advisors.

For ethos, I applied to 14 at 10 top-tier schools. I secured offers of admission from 11 programs of the 9 schools. I was waitlisted at 1 and rejected at 2. The 2 programs I didn't get into (CMU + Penn Data Science) were the programs that I would least have liked to go to of my list due to their lack of industry focus.

Let's go over how I've set this up:

1. The "Preparatory Resources" part contains a collection of my personal advice for different parts of the application as well as a collection of links/documentation of other people's perspectives. Go through this first if you're still putting your thoughts together.

2. Everything from "Miscellaneous" through "Incomplete Applications" is additional material that adds context. It is not meant to be read in its entirety. Please do not be overwhelmed.

3. The "Miscellaneous" part includes general stuff: the list of programs I applied (or thought about applying) to, my transcript, acceptances/rejections/waitlists, the first personal statement I wrote, and a third-person perspective of "who I am" (made to give additional context to professors who didn't know me super well)

4. The "Completed Applications" part contains all of the applications I submitted including all personal statements, alternative essays, videos, etc (separated by school). DS means Data Science. QF means Quantitative Finance/Financial Mathematics/Computational Finance/Financial Engineering. BAS means Business Analytics. I would recommend jumping through here as you are writing your different essays.

5. If you want to see my iteration in writing personal statements, I'd recommend (in this order), reading the Personal Statement RD1 under Miscellaneous, then CMU Data Science, then MIT Rough Drafts 1, 2, 3, 4, then finally MIT Final Personal Statement under Completed Applications. Personal statements will almost always be bad the first time around. The best personal statements come from multiple revisions.

6. The “Incomplete Applications” Folder includes alternate prompts. I didn’t do these, but it may be useful to see additional prompts you might encounter.

Chapter 2

Preparatory Resources

2.1 General Advice

1. Get started early. Do some work here and there. Get some files together. Trying to write applications in a condensed time frame is difficult. Trying to do many of them is worse. By the time I got to my final applications with different essays/video essays (Northwestern, UCLA, Duke, Chicago Quant), I was fatigued. I didn't even bother retaking any videos I did besides the MIT ones. That is not good! With a larger time frame, you won't get as tired and you'll be able to get some applications in significantly earlier than their respective deadlines (BIG DEAL AT ROLLING ADMISSIONS SCHOOLS)

2. Figure out what you want out of grad school. I figured out that the 4 main things I wanted were 1) a job following the program, 2) prestige, 3) a collaborative community in the program, 4) the program to have a business focus while being quantitative (and theory-based) in nature. This allowed me to hone my school list pretty significantly (saving me time and money). Also, it's made it really easy to set up a personal ranking list for programs if I were to be admitted.

3. Figure out your specific interests. Some schools don't offer the classes you are most interested in or have teachers with your research interests. I'm not saying you shouldn't apply, but don't get caught up in all that school's other crap (rankings, graduate pay, ...) if it doesn't suit you. Ex. Baruch's Quant Finance Program (Ranked incredibly highly), seems to mostly target trading. I'm not currently that interested in trading. So I didn't apply.

4. If you have to take the GRE/GMAT for any of the programs you selected and are planning on applying to, take a practice test and begin practicing immediately. The sooner you can get test ready, the better off you'll be. It takes longer than you may think to improve your score, especially if you have a full-time job or are a full-time student. Worst case scenario, you are right at your target scores and you have it out of the way quickly. Otherwise, you've already started buying yourself time.

5. You don't have to hit every one of your target programs' averages/medians. If everyone considered that the minimum, the average or median would be higher :)

6. When interviewing or writing your applications/resumes/letters to professors, talk/write as if you were your best friend wing-manning you. Everything you do/did is cool and has value. You earned all of your achievements and praise. You deserve to get what you want. It can be difficult to not feel like you're bragging, but really what you're doing is telling the story of how you got where you are as a favorable observer. That's what admissions committees need to see and understand.

7. Get advice from family members, professors, employers. Don't be afraid to ask for help. Also, random strangers on the internet can sometimes provide helpful guidance. I went back and forth with a kind stranger on the r/FinancialCareers subreddit fixing up my resume. That being said, take EVERYTHING said by anyone else with a grain of salt. Evaluate their thought as objectively as possible (and ask for reasoning, if you

are unsure). Are you not making something clear or acting a certain way you don't want to be seen? Or are they just finding some non-existent problem in your writing? If you don't like a change someone else is proposing, don't take it.

8. Don't ask people for profile evaluations. You're only setting yourself up for disappointment. The whole process is a crapshoot and most people have no accurate way of judging you. Different programs are different, too. Either they tell you "You're in a great position" and nothing changes, or they tell you "You'll never make it" and you get emotionally blown up/decide not to apply.

9. Grad schools cost a metric butt-load to apply to. Between taking the GRE, sending out scores, and application dues, I spent $2000 applying to my collection of schools.

2.2 GRE Prep

I decided to apply to graduate school late, so I only had 3 days to study for the GRE. If you feel uncomfortable with your practice scores relative to your target program, I would recommend studying for longer. Many programs require you to report all scores, so doing well the first time around is recommended. You can also retake it up to 5 times in a year (each test a minimum 21 days apart). It costs a ton of money to take. If you can get this done the summer before you apply (rather than my Dec 1 test date), you'll be in for way less stress.

That being said, with the time you do have, I would 100% recommend GREGMAT and the official ETS material. All of it is INCREDIBLY WELL PRICED relative to online tutors and whatnot. I spent my 3 days studying going through practice tests and GREGMAT videos, and I know he pulled my Verbal and AWA scores from 159 and 3.5 to 162 and 4.5. I didn't have time to study vocab and I didn't bother studying for quant.

One thing I will say is that the GRE, in its testing environment, is taxing. The practice tests don't have the "research" section, so you don't get as much of a feel for what it's like to be under pressure for however many hours straight. I didn't sleep well the night before my test and had a QVQVQ ordering, so by the end of my last quant section I was essentially braindead. Like I could hardly do simple geometry problems. Try your best to get used to sitting and working that long, it could save you in the end.

Also, side note, I would recommend taking the GRE in person. I've heard horror stories about taking it through ProctorU. I've also heard reports of cheating. Taking it in-person removes almost all plausible error or questionability. MIT asked me whether I took it at home or in person. I would be unsurprised to see more programs do the same.

2.3 Talking to Professors (Recommendations Letters & Advice)

NEVER WASTE A PROFESSOR'S TIME EVER EVER EVER.

What is wasting a professor's time: scheduling meetings and being late, asking easily googleable questions, saying you're particularly interested in and asking about someone's

research if you haven't read any of it

Recommendations:

A recommendation is the only(!) part of your application that isn't you playing show and tell. Your recommenders can easily make or break your application. You want them to write a strong recommendation. If they are a good recommender, they want to make you look like a saint + genius. You have to a) give them all the information to do that, b) have a relationship with them, and c) make it clear what you are looking for in terms of what the recommendation letter contains (speaks to quantitative ability, good person, hard worker...).

It is MUCH better to have a good recommendation from someone who knows you well and thinks highly of you (even if you did poorly in their class) than from a teacher who you got an A in and never talked to. What would they say? "This student worked so hard in my class and I couldn't be happier to have had him. He is one of the best students I've interacted with and any graduate program would be lucky to have him" vs "This student got an A". Which do you think is more compelling?

Getting a recommendation from a teacher for one of your classes:

Figure out a teacher/class you like. Then make it your mission to do VERY well in the class. Show up to office hours, don't be afraid to look stupid, have a good time, BE YOURSELF. Be professional though. Ask for advice.

If you're extroverted, this will happen naturally. If you're shy, you have to put effort into this. It won't be easy to start doing. Once you're friends with the prof, though, it will be much easier. Also, the profs want friends! Think about how interesting and cool all your profs are, but how few of your classmates think of them as full-on people! Like meeting with seniors in companies, this is an opportunity to gain another person's perspective of the world. Beware that they may try to push you into Academia, though. Sorry to all the teacher's I've disappointed.

When you make a connection with a teacher (through research, class, project, or otherwise), the goal isn't for them to write you a recommendation letter. The goal is to get their advice throughout your college career (and beyond). Ask questions that matter to you. Eventually, you'll come to some point in your life where you're applying for something that needs references. The people that come to mind are the people that should write them.

That being said, you should have more possible recommenders than recommendations needed. Some professors won't respond to your emails, some won't seem to understand the application process, some will be difficult to read (in terms of knowing how nicely they'll write), some might have predilections for understatement. You want someone who clearly cares about writing you a good recommendation. For context, I had seven teachers that I considered being my recommenders, but, in the end, the three I ended up using were the only ones that would have worked.

When asking for a letter of recommendation, specifically ask "Would you be willing to write me a STRONG letter of recommendation" – This is awkward. I definitely did a disservice to myself by having no idea what I wanted to do as I talked to my profs.

Make sure that most of your recommenders (if not all of them) can speak to your ability in the subject matter you are applying for. For PhDs, you should want all your recommenda-

tions to come from people that you researched with/under. With respect to the programs I was applying for, I needed to have them talk about my quantitative ability. That would have been difficult had I asked my English teachers. Also, specify what skills you want them to talk about. I said this earlier, but I'm reiterating because this is definitely a place I messed up.

A detailed breakdown of my recommendation letters:

My freshman year Analysis professor. He has been my mentor ever since I took his class. First semester in his class I got a B+, second semester I got an A. Second semester, I'm pretty sure I was in his office hours every day he had them. I easily spent 20+ hours a week for that class. He is a god amongst men and I couldn't be happier to have had him as my friend and mentor. Fantastic teacher. He wrote one of my recommendations and looked over a couple of my essays. I messed up by being 5 minutes late to the meeting when I was going to ask him for the recommendation – it went over fine though because he's incredible. (Quant/Analytic Academic Recommendation)

The teacher/supervisor for the McClain Torch Fund (see resume). Another wonderful dude. I definitely had a rocky start into the fund (imposters syndrome, the whole 9 yards) and took a bunch of time to get to a point where I felt comfortable. The second semester I was participating on the fund, I put a lot of effort into making all the new people feel comfortable. By the end of it, I was one of the spokespeople for the program. I went to him when I struggled in the beginning, I went to him with thoughts I had, I went to him to ask finance questions, and he took the time to answer all of them. Incredible man. I couldn't imagine spending my last working year with anyone else as my supervisor. (Work/Academic Recommendation)

Class teacher – the teacher I had for my most recent portfolio management class. Great class, lots of fun. Easily one of the best classes I've had in undergrad in terms of fun topics and quality of teaching. I performed best in the class by about 10% I think (I had 103% in the class, next closest was mid 90's). He was straight up talking me up to the class after the first test. I rarely ended up going to office hours, but we had a good relationship throughout and I did ask questions. That being said, this was the recommendation I was least certain about just because I hadn't had as much opportunity to get up to some shenanigans with him. An additional upside of asking him is that he could speak to the weakness in my GPA (imperfect because of my time spent during dual-enrollment) through current academic performance. 10/10 he is fantastic. (General Academic Recommendation)

Profs you want to research with:

"Asher's law: though shalt not call, write, or visit any professor without having read some of their work." Professors LOVE to talk about their work. Very few students take the time or have the initiative to, before talking to a professor, read their work. If you do, you can come in and be taken seriously. Otherwise, they'll just direct you to their research and thank you for wasting their time. This is a bad look. Imagine you were working under them: would they prefer the student that proactively does readings or the one that needs constant guidance? Professors want to work with you and, sometimes, provide guidance. They don't want to babysit you.

2.4 Essays

The key to the essays is being concrete and specific. "Show, don't tell." The goal is to answer the questions: "Why Masters in X?", "Why our school?", "Why now?", "How will you contribute to/fit into the X program?", "Are you prepared for X program?", and "How will X school help you achieve your goals?" in a way that both stands out and makes sense. The way you make it stand out it by making it personal (what experience do you have that made you interested in ... The way that you make it make sense is by connecting that interest to what, exactly, they offer (and how their program is differentiated).

The template that I used:

1. Personal story introducing my interest
2. Official statement of interests and post-graduation wants
3. Connect school's programs to those interests
4. Explain how I fit well into the school and am prepared for the program
5. Why you need the program to achieve your goals

Tips:

1. BE SPECIFIC: Cite specific classes that you're interested in taking, profs you're interested in working with, class size/location/cultural fit/etc. Any and all details help you. Try to avoid generalizations
2. BE CONCRETE: Try to make all experiences real. Avoid using platitudes. The schools are looking for someone that brings unique experiences that will add to the program, not how you are just like all their other applicants
3. Don't try too hard to look like a good person. At the end of the day, you're looking at these programs to further your education in the subject *cough* and maybe get a job *cough*, not help people.
4. Try to avoid talking about the prestige of a school. You wouldn't stand out by walking up to a supermodel and saying "you're so beautiful" (they know).
5. If you have a lot of essays that will be reused, do your top choice program first. You are likely genuinely excited about them, so your interest will come through. Then you can edit that essay to match other programs' offerings.
6. Try to avoid seeming infatuated. While all programs are different, there are very few that have aspects that are genuinely "unique". If it's a smart thing to do, many programs will be doing it. The school knows this. This is just an opinion, but it can seem like you're overdoing it, that you're trying too hard to say that you like them

7. Have them be looked over by a bunch of different people. If you can, include some people that aren't your best friends or direct family. Friends and family are willing to spend the most time with you, but are also likely the most blind to tone problems (because they know you to be well-intentioned). Again, take all advice with a grain of salt. There is no such thing as too many cooks in the kitchen if you make most of them stand outside.

If you want to see my iteration in writing personal statements, I'd recommend (in this order), reading the Personal Statement RD1 under Miscellaneous, then CMU Data Science, then MIT Rough Drafts 1, 2, 3, 4, then finally MIT Final Personal Statement under Completed Applications. Personal statements will almost always be bad the first time around. The best personal statements come from multiple revisions.

2.5 Resumes

2.5.1 Resume Advice

Resumes are difficult... You have the opportunity to highlight the skills that you have using a portion of the work/projects/extracurriculars you've done, but you have to choose which of those things to include. Even more challenging, you have to choose the language with which you describe those things. In my opinion, the most important things to do on a resume are a) prove that you have the skills your reader is interested in and b) be concrete/concise (the readers spend very limited time on your resume, all the time spent reading flowery stuff is time away from the actual work you did).

Programs are looking for your capabilities in certain areas. Each type of program has different ideas of the person they are looking for. Think about what you think the program wants, then match your experiences to it. Highlighting collaboration abilities is almost always worthwhile.

Show how your experience matters or has made a difference somewhere. Show you were indispensable in your previous roles. Often this is seen as quantifying your work (you did thing X times, saved X dollars, etc), but sometimes you can just be very clear as to outcome without adding numbers (see Melton bullet point 4)

Other thoughts:

1. Don't try to explicitly brag. Use language that clarifies your meaning, but don't add additional context to flex. I think that my first resume could be read as "braggy" because I frequently used words/phrased that added additional, unneeded context like special, one of x chosen... You should be looking for a humble-brag vibe

2. Don't fill space with meaningless crap. There are plenty of passable resume formats out there that have less content on them. If you imagine that any of these people reading your resume is just skimming through and they come across some some crap, they'll throw it away

3. DON'T YOU DARE LIE. KNOW YOUR RESUME BACK AND FORTH. It is worth noting that, should you be admitted to a program, they will likely use some additional service to check through your resume and background. I was checked by Re Vera Services.

4. PROOFREAD

5. Get help on your resume like you'd get help on an essay. Do your resume, use some software to check it, ask some people to check it, then repeat. Some random user on reddit helped me transform my old resume into my new resume.

2.6 Original Resume

EDUCATION

The University of Tennessee, Knoxville Knoxville, Tennessee
Bachelor of Science in Honors Mathematics Graduation: May 2021
Double Major: *Mathematics (Special Recognition Honors Program); Finance, Business Analytics Concentration*
Minor: *Computer Science*
Cumulative GPA: 3.70/4.00

- Tuition fully funded through merit scholarships. Awards include Simm's Foundation Math Scholar (awarded to top incoming freshman), John M. Allen 2nd Place (freshman version of the Putnam competition), Melton Research Scholarship, Cooper D. Schmitt Memorial Scholarship
- Relevant coursework: regression modeling, machine learning, numerical algebra, data structures, optimal control theory, partial differential equations, topology, and analysis

WORK AND RESEARCH EXPERIENCE

McClain Torch Fund Knoxville, Tennessee
Investment Fund Manager January 2020 - Present

- One of three students selected to manage ~$300,000 of University of Tennessee endowed funding for investment into US equity, using a value approach
- Outperformed benchmark Russell 3000 Value Index by 607 basis points YTD
- Identify market and company growth/risk catalysts for the purposes of investment ideation
- Create investment strategy proposals by synthesizing company financial statements and other pertinent information using Bloomberg, SEC Edgar, and a variety of other news sources
- Perform due diligence regularly to reevaluate equity holdings in education, information technology, and communication sectors
- Devise quarterly portfolio reports and presentations for donors and fund stakeholders

Melton Scholar Research Program Knoxville, Tennessee
Competitively Funded Undergraduate Researcher August 2019 - May 2020

- One of four undergraduate students selected to partner on research projects with a faculty mentor in the Department of Business Analytics and Statistics
- Conducted research on autism using machine learning techniques in MATLAB with Dr. Hamparsum Bozdogan
- Visualized genetic data in order to gain a better practical understanding of the statistical differences between the control group and the autistic group
- Reduced genetic data's dimensions from 101 to five attributes using sparse PCA
- Developed and compared models using a variety of modeling techniques (neural networks, SVMs, and classification trees) to predict autism from both full and reduced attribute genome data — attained 78% predicting accuracy using a deep neural network on the full data set

YMCA Camp Fuller Wakefield, Rhode Island
Overnight Counselor and Sailing Instructor Summer 2018, Summer 2019

- Supervised and mentored cabins of boys (7-13 y.o.). Organized "Pirates and Navy Day" event, serving as team captain to manage and entertain 300 children
- Coached sailing — groups coached had the highest pass percentage and largest pass population. Awarded Junior Counselor of the Session

ADDITIONAL INFORMATION

- Skills: C++, Microsoft Office Suite, MATLAB, R, Python, Bloomberg Terminal
- Activities: Chancellor's Honors Program, Math Honors Program, Secretary of Tennessee Capital Markets Society, Business Administration Peer Mentor, 34 ACT, Camp Fuller Certified Skipper
- Interests: Game Theory, Hearthstone, Cooking, Sailing, Physical Fitness

2.7 Final Application Resume

EDUCATION

The University of Tennessee, Knoxville — Knoxville, Tennessee
Bachelor of Science — August 2018 - May 2021
Double Major: *Honors Mathematics; Finance, Business Analytics Concentration*
Minor: *Computer Science*
Cumulative GPA: 3.73/4.00

- Dual enrolled August 2015 - May 2018. Entered full-time enrollment as a senior with 90 credit hours
- Tuition fully funded through merit scholarships. Awards include Simm's Foundation Math Scholar (awarded to top incoming freshman), John M. Allen 2nd Place (UTK freshman version of the Putnam competition), Melton Research Scholarship, Cooper D. Schmitt Memorial Scholarship, Dean's List Fall 2018-Present
- Relevant coursework: regression modeling, machine learning, data structures and algorithms, optimal control theory, data mining, probability and statistics, financial statement analysis, portfolio management, and analysis

EXPERIENCE

TENNESSEE CAPITAL MARKETS SOCIETY — Knoxville, Tennessee
Selective, student-managed organization providing supplemental finance education and job preparation — August 2020 - Present
Executive Board Member and Secretary

- Procure materials and invite speakers on topics in financial statement analysis, market research, and valuation modeling
- Disseminate resources among organization members by reprogramming website, updating subreddit, and sending emails

MCCLAIN TORCH FUND — Knoxville, Tennessee
Investment Fund Manager — January 2020 - December 2020

- Managed an equity fund (totaling $300,000) for the University of Tennessee in a team of 3-7 implementing value-based strategies and principles. Resultant portfolio outperformed benchmark (Russell 3000 Value Index) by 607 basis points
- Identified market and company growth/risk catalysts for investment ideation
- Created investment strategy proposals and stock valuation models by synthesizing company financial statements and other pertinent information, using Bloomberg, SEC Edgar, and a variety of other news sources
- Performed regular due diligence on six equity holdings in the communication and information technology sectors
- Devised quarterly portfolio performance results for donors and fund stakeholders

UNIVERSITY OF TENNESSEE HASLAM COLLEGE OF BUSINESS — Knoxville, Tennessee
Business Administration 100 Peer Mentor — Fall 2019, 2020

- Formulated curriculum with faculty to facilitate 52 freshmen students' transition from high school to college
- Taught lessons on and provided personalized advice in communication, time management, and resource management skills

MELTON SCHOLAR RESEARCH PROGRAM — Knoxville, Tennessee
Competitively Funded Undergraduate Researcher — August 2019 - May 2020

- Conducted autism classification research in a fellowship of four under the supervision of Dr. Hamparsum Bozdogan of the Department of Business Analytics and Statistics
- Visualized genetic data seven ways to better understand statistical differences between control and autistic groups
- Applied sparse principal component analysis to reduce genetic data's dimensions from 101 to five attributes
- Employed both full and reduced attribute genome data to develop neural network, SVM, and classification tree models for classification prediction
- Presented insights to the HCB judging committee at UTK's Exhibition of Undergraduate Research and Creative Achievement

YMCA CAMP FULLER — Wakefield, Rhode Island
Overnight Counselor and Sailing Instructor — Summer 2018, 2019

- Honored as Junior Counselor of the Session for diligence and enthusiasm in coordinating large-scale events, supervising cabins, and instructing sailing. Sailing graduating class was camp's largest (60+) at the highest pass rate (95%+)
- Organized and led a team of 150 "navy soldiers" to victory against 150 "menacing pirates" in the "Pirates and Navy Day" weekend event

ADDITIONAL INFORMATION

- Technical Skills: Programming (C++, Python, R, MATLAB), Microsoft Office Suite, Bloomberg Terminal
- Activities: Math Honors Program, 34 ACT, Camp Fuller Certified Skipper, Superball Challenge Hall Of Fame (video-game automation), Math Department Ambassador 2019, GRE (169Q 162V 4.5AWA), Sitting for CFA Level 1 on 3/1/2021
- Interests: Game Theory, Hearthstone, Baking, Sailing, Physical Fitness

2.8 Interviews

Masters programs interviews are essentially a time for you to regurgitate (or rephrase if changes were necessary upon further research) your personal statement. Interviewers are looking to make sure that you're motivated to succeed in the program, that you'll fit into the class well, and that you didn't lie in your application.

They also want to make sure that you're into them aka that you will likely attend their school, so you should, as best you can, know the program in-and-out by this point. Interviewing current students will help you tremendously in preparing for this part.

If you get to the interview stage, the school thinks that you can succeed in the program. Don't worry too much and try to be yourself.

Questions you should be prepared to answer:

1. Why Masters in X? Why our school? Why now?
2. What are your plans post graduation? How would our school help you achieve those plans?
3. Normal resume questions
4. Normal behavioral questions
5. How will you decide which school you go to?
6. What questions do you have?

I would recommend running through all of these questions with a friend on repeat until you feel comfortable answering them. Once you can do it for one school, you can do it for all of them.

Additional tips:

1. Sit on the edge of your seat (it forces you to sit up straight)
2. Try to use a chair without arms (more hand movements indicate excitement)
3. Maintain eye contact as best as possible. This is particularly important with zoom/skype interviews
4. BE CONFIDENT, remember you deserve admission.
5. Try to be yourself. At the end of the day, either the program will like you for you (in which case you'll fit in and have a good time), or it won't (if you're admitted and go, you'll likely be socially isolated and not have fun)
6. BE POSITIVE. Every bad experience was a learning experience, everyone you work with is smart and motivated... No school wants to hear that you're willing to actively bad-mouth something because that means that, if it doesn't work out, you could end up bad-mouthing them

7. Take a moment to think about the question before you start rambling (one of my biggest issues). It is alright to say "can I have a moment to think about that."
8. If you are doing technicals, explain your thinking as you go (this gives you more time to think and can give you a lot of partial credit)
9. Answer the questions they ask, but don't overelaborate (go into tangents and whatnot).

2.9 Other People's Resources

2.9.1 General Advice

1. Full Guide 1
2. Full Guide 2
3. Shorter Full Guide 3
4. Guide with more links
5. Don't Do These Things – "Kisses of Death" Research Paper
6. General Reading
7. General Advice Part 2
8. Inside Scoop (Some Luck Involved, Don't Get Down on Yourself)
9. Accepted Applicant Writeup
10. Director of Graduate Admissions AMA
11. Another AMA from Prof (PhD I think)
12. PhD App 5-min overview from admissions
13. Someone Else's Application

2.9.2 GRE

1. Official Materials Breakdown – Watch This
2. Issue Essay Guide
3. Argument Essay Guide
4. Best and cheapest service (with free options)
5. Free GRE Materials - Where to get it!! (2020)
6. ALL the Official Guides for the GRE Exam© - The Complete Ed.

7. GRE - PowerPrep® The FREE Practice Tests Explained
8. GRE Math Book- All you do need
9. GRE Time Management - The Definitive Guide (2021)
10. FREE GRE Practice Tests [Collection] - New Edition (2021)
11. You Need to Take the GRE
12. Major Improvement Experience 1
13. Major Improvement Experience 2

2.9.3 Essays

1. Don't Do These Things – "Kisses of Death" Research Paper
2. Essay Breakdown
3. A Template
4. Notes From Donald Asher's "Graduate Admissions Essays"
5. A Writing Tutor's Advice

2.9.4 Talking to Profs

1. Talking to Profs You Want to Research With

2.9.5 Resume

General:

1. Recruiter Thoughts – Includes a template and is a great resume overview
2. Rezi Creator AMA – Honestly not that helpful, just here for context
3. Action Verbs

Software Tools:

1. Rezi
2. VMock

2.9.6 Interviews

1. Neuroscience PhD Candidate Interview Experienced
2. Interview Questions Master List
3. Act Like You Deserve It

2.10 Chill Out & Handling Rejection

Applying to graduate school and dating are very much similar. It's a total crapshoot and the initiation of the relationship is based on some first impression that involves relatively few important details. If you both "swipe right," then you have the tremendous opportunity you wanted that you'll fit well into. Something that I think is worth noting is that a rejection, besides being a blow to the ego, is not a bad thing. Schools know themselves, their programs, and their respective communities better than you possibly could. I would have hated going to the two programs that I got outright rejected from, they weren't interested in what I was interested in. You deserve everything you want from the world and if the admissions committee misses that, either the program wasn't right for you or the committee is abysmal at their job. You are likely better off being rejected from a program than being accepted to a program you should have gotten rejected from. If you disagree, wait a year and try again!

You can only do so much to make your application the best it can be. Some things, you actually can't change fast enough or at all. Almost nobody can make an accurate evaluation of your profile, especially if they only know a small portion of it. Try your best. You've got this. Submit your application on time and everything will be fine. You should be proud of yourself for submitting an application that you'd stand by. When I called my mom and told her I got my first acceptance at Columbia, she said "I'm not proud of you for getting into Columbia. I'm proud that you put in the work to write such a strong application." Ignoring the emotional trauma from the first half of that statement, she was right! A school's decision is not a reflection of the work you've done. Once you submit, check out. Get into some shenanigans. Hang out with friends. Get yourself a nice meal. Don't stress yourself out by checking message boards or any such other garbage. It won't help you get into school, people will lie to get in your head, and it will take up time/mental space.

1. FLOAT Stress Management
2. Wait it out
3. No One Knows Your Whole Profile
4. Joke Rejection
5. This is Me
6. Me Again
7. You're Fine – GRE

Chapter 3

Miscellaneous

3.1 My Masters Programs List

Color Match = Same Essay Type

BAS:
Business Analytics Rankings

Carnegie Mellon DS - GRE Req and Dec 10 deadline — Round 2 Application -- Rejected (I applied to the wrong program lmao)
Georgia Tech - GRE req Jan 1 — Accepted
Columbia BAS- GRE Rec Jan 15 — Accepted
MIT BAS-- GRE rec Jan 7 -- Interviewed -- Accepted
UCLA BAS - Jan 8 -- Interviewed — Accepted
NYU - GRE Req Jan 22 -- Accepted
Duke - Jan 13 -- Round 2 Application -- Interviewed — Accepted
Chicago - GRE recommended Jan 15 — Accepted
Penn - GRE recommended March 15 — Applied Late — Rejected
Northwestern - January 15 -- Round 2 Application -- Interviewed -- Accepted

USC - Jan 15 Not doing
UT Austin - Couldn't get application portal to work so not doing

Quant:
Rankings
Additional Info

Baruch - Jan 15 RF -- Not Doing
Berkeley - GRE Jan 10 -- applications don't open until Dec 9 -- Not Doing

~ Columbia Math - GRE Rec May 7 -- Accepted
~ NYU Engineering - GRE Dec 1 -- Applied after priority deadline -- Waitlist
Carnegie Mellon Quant- Dec 10 GRE Req -- Interviewed (botched) -- Second Round Interview -- Accepted
Chicago Quant- Jan 14 -- Accepted

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3.2 My Transcript

THE UNIVERSITY OF TENNESSEE KNOXVILLE
ACADEMIC TRANSCRIPT

Channing, Harry Moses 000-43-7544

06/23/2021 1

		FALL SEMESTER 2015 Transient				
MATH	148	Honors: Calculus II	4.00	U	C-	
		SPRING SEMESTER 2016 Transient				
MATH	300	Intro/Abstract Mathematics	3.00	U	B+	
		FALL SEMESTER 2016 Transient				
ACCT	200	Foundations of Accounting	3.00	U	B	
MATH	237	Honrs Differential Equations I	3.00	U	B+	
MATH	251	Matrix Algebra I	3.00	U	B+	
		SPRING SEMESTER 2017 Transient				
BUAD	202	Money Matters and More	3.00	U	A	
ECON	201	Intro Economics: Survey Course	4.00	U	A	
MATH	351	Algebra I	3.00	U	A	
		FALL SEMESTER 2017 Transient				
COSC	130	Computer Organization	4.00	U	A	
ENGL	102	English Composition II	3.00	U	B+	
MATH	241	Calculus III	4.00	U	A	
MUCO	110	Intro/Music Western Culture	3.00	U	B+	
PHYS	135	Intro Phys/Sci Math Majors I	4.00	U	A	
		SPRING SEMESTER 2018 Transient				
COSC	140	Data Structures/Algorithms I	4.00	U	B	
ENGL	255	Public Writing	3.00	U	A-	
MATH	323	Probability and Statistics	3.00	U	B	
MATH	467	Honors: Topology	3.00	U	A-	
MGT	201	Intro/Business Management	3.00	U	A-	
PHYS	231	Fund Phys: Electric/Magnetism	3.00	U	W	
		SUMMER MINI 2018 Transient				
CMST	240	Business/Profess Commun	3.00	U	A	
		FALL SEMESTER 2018 Haslam College of Business				
BUAD	100	Inclusion: Engaged Lead in Div	1.00	U	A	
COSC	302	Data Structures/Algorithms II	4.00	U	A	
ENGL	198	Chancellor's Honors Writing I	3.00	U	A-	
FINC	301	Financial Management	3.00	U	A	
FYS	100	The Volunteer Connection	0.00		S	
MATH	447	Honors: Analysis I	3.00	U	B+	

----------CONTINUED ON NEXT COLUMN----------

		SEMESTER 2018 Haslam College of Business				
CHEM	120	General Chemistry I	AP	4.00	U	S
CHEM	130	General Chemistry II	AP	4.00	U	S
HIUS	221	History of the United States	AP	3.00	U	S
HIUS	222	History of the United States	AP	3.00	U	S
MATH	147	Honors: Calculus I	AP	4.00	U	S
PHYS	221	Elements of Physics	AP	4.00	U	S
POLS	101	U.S. Government/Politics	AP	3.00	U	S
		SPRING SEMESTER 2019 Haslam College of Business				
BAS	320	Regression Modeling		3.00	U	A
BUAD	200	Integrity:Ethicl Lead/Eff Comm		1.00	U	A
BUAD	242	Business Software Applications		2.00	U	B
ECON	213	Principles of Macroeconomics		3.00	U	A
ENGL	298	Chancellor's Honors Writing II		3.00	U	A-
MATH	448	Honors: Analysis II		3.00	U	A
MATH	585	Optimal Control Theory		3.00	U	A-
		FALL SEMESTER 2019 Haslam College of Business				
BAS	474	Data Mining/Bus Analytics		3.00	U	A
BAS	494R	Quan Res in Business Analytics		3.00	U	A
COSC	425	Intro/Machine Learning		3.00	U	A
FINC	420	Financial Statement Analysis		3.00	U	A
HIEU	248	Honors: Dev West Civilization		3.00	U	A
MATH	535	Partial Differential Equat I		3.00	U	A
		SPRING SEMESTER 2020 Haslam College of Business				
BAS	494R	Quan Res in Business Analytics		3.00	U	A
ECE	255	Intro/Logic Design Digital Sys		3.00	U	A
FINC	495	Investment Fund Management		1.00	U	A
MATH	397	Junior Honors Seminar		2.00	U	S
MATH	472	Numerical Algebra		3.00	U	A
MATH	498	Senior Honors Thesis		1.00	U	A
PHIL	252	Contemporary Moral Problems		3.00	U	A
POLS	471	Internat Political Economy		3.00	U	A

Due to academic disruptions in Spring 2020, students in undergraduate courses with A-F letter grading were permitted to opt-in to satisfactory/credit/no-credit (S/CR/NC) grading before final grades posted. For undergraduates, letter grades A to C correspond to S, letter grades C- to D- correspond to CR, and F grades correspond to NC.

----------CONTINUED ON NEXT PAGE----------

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Jeff Gerkin
Interim University Registrar

THE UNIVERSITY OF TENNESSEE KNOXVILLE
ACADEMIC TRANSCRIPT

Channing, Harry Moses 000-43-7544

06/23/2021 2

FALL SEMESTER 2020 Haslam College of Business

COSC	102	Introduction/Computer Science	4.00	U	A
FINC	427	Honors: Invest/Portfolio Mgt	3.00	U	A
FINC	495	Investment Fund Management	2.00	U	A
HIEU	247	Honors: Dev West Civilization	3.00	U	A
MATH	398	Math Honors Program	0.00		S
MATH	457	Honors: Abstract Algebra I	3.00	U	A
MATH	495	Math Proficiency	0.00		S
MATH	497	Undergrad Honors Seminar	2.00	U	S
MATH	498	Senior Honors Thesis	2.00	U	A

SPRING SEMESTER 2021 Arts and Sciences

BUAD	492	Off-Campus Study	3.00	U	S
CHIN	332	Advanced Chinese II	4.00	U	A
COSC	340	Software Engineering	3.00	U	A
MATH	398	Math Honors Program	0.00		S
MATH	498	Senior Honors Thesis	2.00	U	A

Degree: Bachelor of Science
Date: 05/08/2021
Major: Mathematics
Major Conc: Honors Mathematics
Minor: Computer Science
Honors: Magna Cum Laude

Cumulative:

U Att: 156.00 Earned: 188.00 Qpts: 584.80 GPA: 3.75

MEMORANDA

High School: L&N Stem Academy
HS Address: Knoxville TN 37902-2808
HS Date Grad: 05/2018

END OF TRANSCRIPT

This transcript processed and delivered by Credentials' TranscriptsNetwork™

Jeff Gerkin
Interim University Registrar

3.3 3rd Person Perspective For Recommenders

Some professors don't know you that well, so you have to give them some additional information that they can write about. Writing something like this (in addition to passing along your resume, transcript, and research) can be quite helpful for professors trying to gather their thoughts. Make sure to clarify that it SHOULD NOT be copy-pasted, this is only to help stimulate thoughts. This was weird to write.

Harry has been recognized as an exceptional student by multiple departments. Coming into college, he was awarded the Simms Foundation Scholarship, a scholarship awarded by the Math Department to its top incoming Freshman. Since then, he has been awarded multiple further scholarships by that department. In the Computer Science Department, Harry is near the top of the "Superball Challenge Hall Of Fame." Last year in the Business Analytics and Statistics Department, Harry was one of the few recipients of the competitive and funded Melton Research Scholarship. This year, Harry was one of the few finance students chosen to serve on the McClain Value Fund. Though Harry has worked in four different departments, his work is unified by a common theme: he is passionate about understanding strategy in the world. He has pursued that passion with an interdisciplinary approach. His interdisciplinary background leads naturally into a graduate program in data analytics or financial engineering.

It is worth noting that Harry has spent a good portion of the last decade playing limited-information strategy games (ex. Hearthstone). What makes the games most interesting to him is attempting to understand what his opponents are thinking, "reading" his opponents. Using this approach, he has previously finished a season as a top 200 legend wild player in the Americas region. As a manager in the McClain Torch Fund, he invested analogously: he wanted to understand the market's thoughts on a company, particularly as they differed from his own, to formulate his investment strategies. He hopes to develop data analysis techniques both to determine the perspectives of other market participants quantitatively and to design portfolios.

Harry puts in effort to give back to the communities that have fostered him. He has chosen to devote his summers to counseling kids at the summer camp he had attended since age seven. When asked about why, he'll enthusiastically first encourage you to send your kids then explain how he wants to play a part in improving the program that has done so much for him. There, he has led a camp weekend as a team captain, had the highest pass percentage of sailing instructors, and been awarded Junior Counselor of the Session. He has similarly taken care to contribute to the Haslam College of Business's program by guiding business students through their first year of college and helping competitive students prepare for high finance jobs in his capacity as a Peer Mentor and as Secretary of the Capital Markets Society. The pride he takes in the successes of the people he has mentored speaks to his commitment to enhancing the community.

Given his leadership, his passion, and his exceptional performance at UTK, there is no question that he would be an asset to and excel in the most demanding of graduate programs.

3.4 Rough Draft 1 Basic Personal Statement

I bring with me the experience of a notably rigorous (if non-standard) academic career. I started dual enrolling at the University of Tennessee at the age of thirteen. Taking college-level courses as an adolescent was incredibly challenging from an organizational standpoint—my early transcript can attest to that. Despite my early imperfections, I was fortunate to have had my college professors recognise my potential -- my favorite college professors wrote my college recommendation letters. I am proud that I have rewarded their faith in me with perseverance: I have continued to take challenging coursework, including several graduate-level classes, while improving my academic performance and receiving many awards along the way.

When I was fifteen, my differential equations professor took me to lunch and insisted that I pursue a PhD in mathematics. Indeed, at every step of my academic career, I have been encouraged to pursue a career in academia. However, as much as I love math and my fantastic teachers, my heart is in solving strategic, information-limited problems. I want to apply everything I have learned -- particularly my ability to think analytically and deeply -- in the business world and, more specifically, to take a "quantamental" approach in portfolio management or strategy consulting.

Looking at my resume and transcript, it would be easy to assume that I am some unfocused amalgamation of math, computer science, finance, and analytics. What I have tried to do in my coursework is create an adaptable foundation on which the ability to solve those strategic, information-limited quantitatively can be built. Not only would going to a masters program for business analytics, data science, or financial engineering help me develop that ability, it would also focus my eclectic set of talents on a practical use.

I think that I could be an asset to any program I get into. I have a strong academic background and a history of challenging myself, so I would push myself until I exceeded whatever expectation could be set by the program; I would work hard to succeed in whatever program I end up in. Beyond that, though, I see myself as a resource to whichever program I am a part of. It matters to me that, not only should I succeed, my peers and those that come after me should succeed. I care to give back. That is why I was a BUAD100 Peer Mentor these last two years; why I spent my 2018-2019 summers as a counselor at the camp that played a large role in my development; why I became the Secretary of the Tennessee Capital Markets Society; and why I worked so hard to make sure that the newcomers to the McClain Fund felt comfortable and were knowledgeable in their roles.

Commented [1]: Braggy

Commented [2]: Too infatuated

Commented [3]: Goal is meh

Commented [4]: Super late to be getting into why a program

Commented [5]: Braggy again/ "I'm such a good person"

Chapter 4

Completed Applications

4.1 Carnegie Mellon

4.1.1 DS Personal Statement

Prepare a concise one or two page essay in PDF format that describes your primary areas of interest, your related experiences, and your objective in pursuing a graduate degree at Carnegie Mellon. Your essay should be specific in describing your interests and motivations. When describing your interests, you should explain why you think they are important areas of study and why you are particularly well-suited to pursue them. You should describe any relevant education, research, commercial, government, or teaching experience.

The application requires a statement of purpose. What makes a good essay?

We are looking for strong, experience-based evidence that you can do well in our degree program and that you "fit" based on our areas of focus. For example, a description of a large software or research project, your involvement in the project, and the impact of the research is good evidence. An explanation of what drew your interest to the MCDS program and how it relates to your professional goals is also useful. You may also take this opportunity to explain any apparent weaknesses in your application. Although details regarding your personal interests and background can be helpful, they are not part of our admissions criteria and should not constitute the bulk of your statement of purpose. Most importantly, your statement of purpose should be written by you and provide an accurate representation of your experiences and goals.

I bring with me the experience of a notably rigorous (if non-standard) academic career. I started dual enrolling at the University of Tennessee the day before I turned fourteen. Taking college-level courses as an adolescent was incredibly challenging from an organizational standpoint. My early transcript can attest to that. Despite my early imperfections, I was fortunate to have had my college professors recognize my potential; my favorite college professors wrote my college recommendation letters. I am proud that I have rewarded their faith in me with perseverance. I have continued to take challenging coursework, including several graduate-level classes, while improving my academic performance and receiving many awards along the way.

When I was fifteen, my differential equations professor took me to lunch and insisted that I pursue a PhD in mathematics. Indeed, at every step of my academic career, I have been encouraged to pursue a career in academia.

However, as much as I love math, I also love business. My time spent creating predictive models for autism only led me to imagine how similar constructs could be used in business. Following my time researching autism, I joined the McClain torch fund to manage a $300,000 all-equity portfolio of university endowed funding with a few peers. There, I regularly used a variety of data sources (like Bloomberg, SEC Edgar, and the news) to create and inform my investment proposals. My experience on the fund has clarified for me that, while there is an immense amount of data that can be used to form predictions, it is often difficult to boil that data down to the important variables. I had access to a wealth of data but I didn't know how to quantitatively leverage that as effectively I would have liked. Though the fund has outperformed its benchmark by a significant margin, additional tools could have helped us perform even better. I want to be able to use data more effectively; I want to take a

fundamentally driven quantitative approach in strategy-focused questions for a variety of industries at a large consulting firm.

Using data effectively is particularly important in our increasingly technologically driven world. Computers already play an integral role in disseminating information and shaping viewpoints, as can be seen with even a cursory glance at the impact "fake news" had on the last two presidential elections, the increasing effectiveness of recommendation algorithms, or the psychological impact that social media has on the youth. In the future, as data becomes more and more available, understanding how to manipulate big data sets will be key in generating powerful and precise models. These techniques will be particularly significant in the realm of consulting, where practitioners must rapidly overcome their initial deficits in industry-specific expertise.

My desire to use big data for predictive and prescriptive purposes has spurred my interest in the Master of Computational Data Science at Carnegie Mellon. If admitted, I would plan to complete the Analytics concentration by taking "Probabilistic Graphical Models", "Large-Scale Multimedia Analysis" or "Machine Learning with Large Data Sets," and "Search Engines." I would hope to take the "Design & Engineering of Intelligent Information Systems"-"Intelligent Information Systems Project" sequence for my electives to get additional hands-on experience. The information presented and experience I get in these courses, synthesized for a business setting, would allow me to leverage big data sets to create strong, strategic recommendations.

Looking at my resume and transcript, it may appear as though my coursework is a jumble of math, computer science, finance, and analytics. But what I have tried to do in my coursework is create an adaptable foundation on which the ability to solve strategic problems can be built. I think that I am particularly well suited to pursue the analytic side of data science for the purposes of consulting because of that adaptable foundation as well as my own interest in the subject.

4.1.2 DS Video Essay

CMU LTI Video Essay

4.1.3 QF Personal Statement

Provide examples from your past professional or academic experience that highlight skills you have developed that will be directly applied in your above-selected functional area? (I chose Hedge Fund - Portfolio Management) (350 Word Max)

I have a passion for math, business, and computer science. I have attempted to create a "well-balanced and carefully coordinated mix of math, probability, applied finance and computation" to pursue my passions through my undergraduate coursework experience, which aligns with Carnegie Mellon's MSCF academic methodology.

Studying math has given me the skill of critical, logical thinking. My difficult math classes, especially my Honors Analysis sequence, have developed my natural intuition, as well as forced me to fill the intuition gaps with rigorous proof. Investors often jump to conclusions and are susceptible to confirmation bias. Thinking like a mathematician requires

one to needle in on the details until truth can be found, even if it is contrary to one's viewpoint. The mathematical mindset is a fastidious one, useful in due diligence.
Studying computer science has developed my skill in iteration. Each compile-time error or segmentation fault I addressed brought me closer to a working solution. After I found a solution, I could iteratively optimize the code's efficiency. That's how I got on the "Superball" leaderboards for video-game automation. In the competitive financial markets, the ability to constantly refine and improve one's models is crucial to generate alpha.

Managing $300,000 on the McClain Fund this last year has given me practical exposure. I realized the models I created were only as good as my market understanding, which drove me to appreciate the importance of qualitative information. One cannot calibrate models effectively without a fundamentally-driven understanding of what one is modeling. In each of my areas of interest, I have gone out of my way to challenge myself and develop these fundamental skills: At UTK I have excelled in graduate math classes, earned a spot on the CS "Superball" leaderboards, researched and predicted autism using quantitative techniques, and helped generate 6% alpha relative to the McClain Fund's benchmark. I am sitting for the CFA1 in March. All of these skills and experiences will be important in being a successful portfolio manager, and I am eager to further enhance these skills in the MSCF.

How did you develop an interest in quantitative finance? What skills are you currently lacking and how will the MSCF program uniquely prepare you with the knowledge you need for career success? (350 Word Max)

Growing up, the two things that I was most passionate about were business and math. As a boy, I was always trading Magic: The Gathering cards, running kiddy candy shops, or selling math tutoring. I skipped grades in math and eventually ended up dual-enrolling for my math classes. At the same time, I bridged out into UTK's CS sequence and business curriculum. I quickly discovered that I enjoyed finance and computer science in the same way I had math. Through hard work and persistence, I eventually secured a position on the McClain Torch Fund, where a few peers and I manage $300,000 of university endowed funding. There, I've regularly used a variety of data sources (like Bloomberg, SEC Edgar, and the news) to create and inform my models and investment proposals. Working as an equity researcher/portfolio manager has been both incredibly challenging and rewarding – I've had engaged peers, interesting companies to cover, and a new way of thinking about the world – but I don't know how to leverage the accessible data and my quantitative skills as much as I would like. My collection of interests made me realize that I want to understand the business world in a quantitative fashion.

The MSCF at Carnegie Mellon would allow me to gain that understanding. While there are many schools that focus entirely on theory or entirely on practical application, few schools combine a rigorous theoretical approach with useful skills. As a math person, I appreciate that the program focuses on (applicable) theory. As a practically oriented person, I appreciate that the program makes sure to demonstrate how that theory is used in practice. The embedded data science curriculum provides breadth. Additionally, Carnegie Mellon has both strong connections to industry as well as strong career advisors that would help me develop the polish I need to get the job I want. The clubs would furnish an opportunity to learn from, give back to, and gain lifetime friends in the Carnegie Mellon community. In

New York, I would have ample opportunity to participate in informational interviews and other networking events.

4.2 Chicago

4.2.1 DS Personal Statement

Please provide a brief and well-written statement (not to exceed four pages, double-spaced, in length) which should include the following:

- your reasons for continuing your education
- your specific educational objectives and how they will be served by the program to which you are applying
- why these objectives are important for your personal, professional, or civic life
- your strengths and weaknesses in academic work

When I was six years old, I went to the park and sold most of my toys. My pricing scheme was ludicrous: every toy cost a nickel, except my 64-count crayon box which cost $13.99 ($3.99 new in stores). The majority of my depreciated assets quickly sold out, and I made 75 cents, a set of happy customers, a 100 percent net margin (impressive, I know), and was left with a 64-count crayon box.

Since then, I've been interested in pricing and marketing strategies. Why hadn't my crayons sold? Why had everything else? How might I have increased my take-home? This interest has been encouraged by my entrepreneurial spirit. At summer camp, I was frequently found running massage parlors, trading Magic: the Gathering cards, and arbitraging across cabin food markets. By the age of fourteen, I had the camp dynamic figured out: in six weeks, I made $600, another set of happy customers, and an 85 percent net margin by taking advantage of the snack-supply limitations inherent to extended-stay sleepaway camps.

These were valuable and formative experiences, and I want to understand these concepts—pricing, markets, customers—on a larger scale. My professional goal is to help create and implement successful go-to-market strategies. My longer-term aspiration is to provide value and add social surplus to the world by doing this work for products I respect at a company whose culture and leadership I admire.

Every successful product has a producer and a consumer. Maximum social surplus is achieved when the excess value of the consumer buying the good plus the profits obtained from the producer selling the good is maximized over the long term. To illustrate the concept of social surplus, consider Google's Ads Auction. Each potential advertiser on Google values an ad display differently, and the bids it places mirror that. Google stipulates that the winners of the ad spaces (the highest bidders, in order), will pay what the bidder below them bid. This pricing scheme—for non-obvious game-theoretic reasons—actually incentivizes participants to bid their true value, an outcome which would not—again for game-theoretic

reasons—be achieved by a traditional auction. Using rules which incentivize "honest" bidding guarantees that the ad space will in fact go to the participant who values it most, and thereby guarantees the maximization of social surplus, while retaining as revenue an amount which would not even be available unless the "best" buyer was the winner.

But this leaves the question of how a company can determine its "true value" for the ad space. Answering this requires a theory-informed quantitative approach. In the world of Google ads this question is not so difficult: the percentage of ad appearances that are converted to "clicks" and the average revenue per click quickly reveal the "true value" of an ad placement. But calculating other similar-sounding "true value" problems may be much more difficult, and yet is becoming increasingly important as companies seek to optimize their value-proposition for their customers. Today's digital commerce generates a deluge of data of nearly every category that is just waiting for the opportunity to be effectively utilized in this context. Companies that don't have these analytic capabilities will quickly fall behind those that do. In order to execute on my vision of delivering value and social surplus in this day and age, I need to become an analytics-savvy leader.

I have a record of seeking out social surplus and finding ways to execute. As the UTK Math Ambassador, I've worked to recruit prospects and to establish the department's social-media presence. Friends tell me that my enthusiasm helped seal the deal for them to become math majors. As a peer mentor and finance club executive, I've procured resources and advised peers, helping them to navigate college and get excellent jobs. During my recent summers, I have worked tirelessly at the YMCA Camp I attended as a child to teach campers to become strong sailors and, hopefully, future sailing instructors themselves. This summer, I hope to be part of the camp's leadership team.

I am excited and prepared to acquire the skills that will distinguish the future's most successful quantitative pricing and marketing analysts. My greatest strength is my breadth of foundational skills. I've pursued my passion for quantitatively-based business through the academic disciplines of math, programming, and finance. And I have challenged myself aggressively while I have done so. The day before my fourteenth birthday, I started dual-enrollment classes at UTK. In the five-and-a-half years since, I've excelled in graduate math classes, earned a spot on the Superball video game automation challenge leaderboards, received funding for professor-mentored autism research, and helped to generate six percent alpha managing $300,000 of university-endowed funding. Though there were some early organizational difficulties, I've maintained a 4.0 GPA since turning eighteen.

I am proud of these achievements, but I still have a weakness: the threads of my academic skills have yet to be woven together. In order to become the analyst I want to be, I must integrate my seemingly disjoint skill set. The University of Chicago's MS in Analytics program would create a perfect environment for me to do that. Its rigorous, theory-based coursework—combined with hands-on, real-world applications in case studies, the capstone, and conferences—would help fuse my passions and make me a flexible, able data-practitioner. The electives—through courses like Marketing Analytics, Digital Marketing Analytics in Theory and Practice, and Optimization and Simulation Methods for Analytics—would provide depth to that fusion and develop my ability to solve the problems that most interest me. The capstone project would allow me to integrate all my capabilities to solve a real-world problem and to demonstrate that I had done so. Ultimately, succeeding at the world-class Analytics program that The University of Chicago runs would inspire confidence, both for

myself and for prospective employers, that I should be entrusted to construct data-informed strategies, policies, and decisions. I am fully committed to my long-term goal, and The University of Chicago's MS in Analytics is the natural next step.

4.2.2 QF Personal Statement

Please discuss your academic and career objectives, why you want to attend the University of UChicago Financial Mathematics program, what you hope to do after completing the program. You may also use this space to clarify or provide additional information about your application materials and/or overall candidate profile that would be helpful to the committee to know. There is a 750 word limit on the Candidate Statement.

There I sat, a freshman at the University of Tennessee (UTK), silently micro-adjusting my 'greedy' Superball Challenge video-game automation algorithm for what felt like the thousandth time as its delivery deadline quickly approached. I was perplexed: How had those topping the leaderboards achieved their high scores?

I later learned that they had used machine-learning techniques. Soon after, I was programming my own machine-learning tools in Python. I was blown away by the accuracy of the models that even my untrained hand could create: After some iteration, my breast-cancer and spam classification models achieved 99.1% and 94.8% testing set accuracy respectively. The question that leapt to my mind was, "How can these tools be used strategically in business?"

Soon after, I joined the McClain Torch Fund to manage a $300,000 all-equity portfolio of university endowed funding with a few peers. There, I regularly used a variety of data sources (like Bloomberg, SEC Edgar, and earnings calls) to create and inform fundamentals-driven investment proposals. This experience has clarified for me that, given the immense amount of data now available to investors, one critical skill is being able to sift through and reduce that plethora to the key variables pertinent to developing and validating a particular investment thesis; I had access to a wealth of data but I didn't know how to leverage it as efficiently as I would have liked.

Today's digital commerce and financial comparisons generate a deluge of data of nearly every category. This job of making that data useful is, however, a job of a progressively larger scale, requiring more and more automation to manage. Models generated by quantitative tools will allow practitioners to outperform their peers relying solely on intuitive understandings of the marketplace. Investors operating without the backing of quantitative tools will be less competitive and find themselves unable to deliver value to their clients. This raises the key question: How can one use data most effectively to inform investment proposals?

I am looking for a graduate-school program that will help me answer that question and bring together my passions for math, business, and programming. My professional goal is to combine fundamental and quantitative research styles to inform my pricing, valuation, and investment strategies. My long-term aspiration is to use these strategies to create investor portfolios that outperform across a wide spectrum of risk and domain profiles.

UChicago's MSFM program would prepare me to achieve that goal. Its rigorous, theory-based coursework—combined with the hands-on, real-world applications in Project Lab, case

studies, and research assistantships—would make me a flexible, able data-practitioner. Its electives—through courses like Corporate and Credit Securities, the Economics Topics, and Fixed Income Derivatives—would develop my ability to solve the problems that most interest me. Its focus on making students career-ready is very appealing to me. And I have long been attracted to UChicago due to its committed culture of intellectual enquiry.

I've always sought to challenge myself: The day before my fourteenth birthday, I started dual-enrollment classes at UTK. At sixteen I applied early-decision to UChicago. Three years later, I am finishing at UTK and looking for my next challenge. I've had a 4.0 GPA since I turned 18, excelled in graduate math classes, earned a spot on the Superball Challenge leaderboards, received funding for professor-mentored autism research, and helped to generate 6% alpha managing $300,000 of university-endowed funding.

I've also always done my best to give back to my communities. As the UTK Math Ambassador, I've worked to recruit prospects and to establish the department's social-media presence. Friends tell me that my enthusiasm helped seal the deal for them to become math majors. As a peer mentor and finance club executive, I've procured resources and advised peers, helping them to navigate college and get excellent jobs. During my recent summers, I have worked at the YMCA Camp I attended as a child to teach campers to become strong sailors and, hopefully, future sailing instructors. This summer, I plan to be part of the camp's leadership team.

I have done great work at UTK. I am proud to call myself a Volunteer. My academic work and leadership experience have prepared me to acquire the skills that will distinguish successful future financial analysts. But in order to realize my professional aspirations, I need to demonstrate my abilities at the highest competitive level. Succeeding at UChicago's world-class MSFM program would allow me to do that. I am fully committed to my long-term goal, and UChicago's MSFM would be the natural next step.

4.2.3 QF Video Essays

Chicago Quant Prompt 1 Chicago Quant Prompt 2

4.3 Columbia

4.3.1 QF Statement of Purpose

There I sat, a freshman at the University of Tennessee (UTK), silently micro-adjusting my 'greedy' Superball Challenge video-game automation algorithm for what felt like the thousandth time as its delivery deadline quickly approached. I was perplexed: How had those topping the leaderboards achieved their high scores?

I later learned that they had used machine-learning techniques. Soon after, I was programming my own machine-learning tools in Python. I was blown away by the accuracy of the models that even my untrained hand could create: After some iteration, my breast-cancer and spam classification models achieved 99.1% and 94.8% testing set accuracy respectively. The question that leapt to my mind was, "How can these tools be used strategically in business?"

Soon after, I joined the McClain Torch Fund to manage a $300,000 all-equity portfolio of university endowed funding with a few peers. There, I regularly used a variety of data sources (like Bloomberg, SEC Edgar, and earnings calls) to create and inform fundamentals-driven investment proposals. This experience has clarified for me that, given the immense amount of data now available to investors, one critical skill is being able to sift through and reduce that plethora to the key variables pertinent to developing and validating a particular investment thesis; I had access to a wealth of data but I didn't know how to leverage it as efficiently as I would have liked.

Today's digital commerce and financial comparisons generate a deluge of data of nearly every category. This job of making that data useful is becoming a job on a progressively larger scale, requiring more and more automation to manage. Models generated by quantitative tools will allow practitioners to outperform their peers relying solely on intuitive understandings of the marketplace. Investors operating without the backing of quantitative tools will be less competitive and find themselves unable to deliver value to their clients. This raises the key question: How can one use data most effectively to inform investment proposals?

I am looking for a graduate-school program that will help me answer that question and bring together my passions for math, finance, and programming. My professional goal is to combine fundamental and quantitative research styles to inform my pricing, valuation, and investment strategies. My long-term aspiration is to use these strategies to create investor portfolios that outperform across a wide spectrum of risk and domain profiles.

Columbia's Mathematics of Finance MA program would prepare me to achieve that goal. Its rigorous, theory-based coursework—combined with the hands-on, real-world applications in the summer internship, fieldwork class, and practitioner's seminars—would make me a flexible, able data-practitioner. Its electives—through courses like Math Methods-Financial Price Analysis, Multi-Asset Portfolio Management, Game Theory, and Hedge Funds Strategies & Risk—would develop my ability to solve the problems that most interest me. Its focus on making students career-ready is very appealing to me. And I have long been attracted to Columbia due to its committed culture of intellectual enquiry.

Studying the Mathematics of Finance at Columbia would require great tenacity and dedication. I've prepared for this by continuously challenging myself at UTK. The day before my fourteenth birthday, I started dual-enrollment classes there. I've succeeded in the Honors Analysis sequence, taken up through graduate level differential equations classes, taken several Abstract Algebra classes (Matrix Algebra, Algebra, Honors Algebra I, and Numerical Algebra), and am completing a computer science minor. I have some background in probability and statistics through my Probability and Statistics, Regression Modeling, Data Mining, and Machine Learning classes. I hope to further develop my statistical background through self-study this summer. I've had a 4.0 GPA since I turned 18, excelled in graduate math classes, earned a spot on the Superball Challenge leaderboards, received funding for professor-mentored autism research, and helped to generate 6% alpha managing $300,000 of university-endowed funding.

I've also always done my best to give back to my communities. As the UTK Math Ambassador, I've worked to recruit prospects and to establish the department's social-media presence. Friends tell me that my enthusiasm helped seal the deal for them to become math majors. As a peer mentor and finance club executive, I've procured resources and advised

peers, helping them to navigate college and get excellent jobs. During my recent summers, I have worked at the YMCA Camp I attended as a child to teach campers to become strong sailors and, hopefully, future sailing instructors. This summer, I plan to be part of the camp's leadership team.

I have done great work at UTK. I am proud to call myself a Volunteer. My academic work and leadership experience have prepared me to acquire the skills that will distinguish successful future financial analysts. But in order to realize my professional aspirations, I need to demonstrate my abilities at the highest competitive level. Succeeding at Columbia's world-class Mathematics of Finance MA program would allow me to do that. I am fully committed to my long-term goal, and Columbia's Mathematics of Finance MA would be the natural next step.

4.3.2 BAS Personal Statement

The purpose of the Personal Statement is for you to share more about your past experiences and to discuss how these experiences have contributed to your personal and professional growth. It allows the applicant the opportunity to explain to the admission committee the distinct qualities and commitment they can bring to the Columbia Engineering community.

A few topics that you may want to address in your Personal Statement include:

- Describe the reasons you are interested in this program and discuss any relevant past experience.
- If you have relevant work or research experience, please indicate how it helped you decide on your career path.
- What are your post-graduation plans or career goals?
- What do you hope to gain from this program?
- What about this program excites you?
- If there are any special circumstances that need to be brought to the attention of the Admission Committee, please include that information.

There I sat, a freshman at the University of Tennessee (UTK), silently micro-adjusting my 'greedy' Superball Challenge video-game automation algorithm for what felt like the thousandth time as its delivery deadline quickly approached. I was perplexed: How had those topping the leaderboards achieved their high scores? I later learned that they had used machine-learning techniques. Soon after, I was programming my own machine-learning tools in Python. I was blown away by the accuracy of the models that even my untrained hand could create: After some iteration, my breast-cancer and spam classification models achieved 99.1% and 94.8% testing set accuracy respectively. The question that leapt to my mind was, "How can these tools be used strategically in business?"

I am looking for a graduate-school program that will help me answer that question and

bring together my passions for math, business, and programming. My professional goal is to use algorithmic game theory to optimize strategy in the realms of pricing, marketing, and perception. My long-term aspiration is to create go-to-market strategies for products that will improve everyone's lives.

Columbia's MSBA program would prepare me to achieve that goal. Its rigorous, theory-based coursework—combined with the hands-on, real-world applications in case studies, the capstone, the summer internship, and research assistantships—would make me a flexible, able data-practitioner. Its Marketing Analytics Track—through courses like Game-Theoretic Business Strategy, Pricing Strategies, and Game Theory—would develop my ability to solve the problems that most interest me. Its focus on building adaptable engineering leaders is very appealing to me.

I've always sought to challenge myself: The day before my fourteenth birthday, I started dual-enrollment classes at UTK. Five and a half years later, I'm looking for my next challenge. I've had a 4.0 GPA since I turned 18, excelled in graduate math classes, earned a spot on the Superball Challenge leaderboards, received funding for professor-mentored autism research, and helped to generate 6% alpha managing $300,000 of university-endowed funding.

I've also always done my best to give back to my communities. As the UTK Math Ambassador, I've worked to recruit prospects and to establish the department's social-media presence. Friends tell me that my enthusiasm helped seal the deal for them to become math majors. As a peer mentor and finance club executive, I've procured resources and advised peers, helping them to navigate college and get excellent jobs. During my recent summers, I have worked at the YMCA Camp I attended as a child to teach campers to become strong sailors and, hopefully, future sailing instructors. This summer, I plan to be part of the camp's leadership team.

I have done great work at UTK. I am proud to call myself a Volunteer. But in order to realize my professional aspirations, I need to demonstrate my abilities and leadership at the highest competitive level. Succeeding at Columbia's world-class MSBA program would allow me to do that. I am fully committed to my long-term goal, and Columbia's MSBA would be the natural next step.

4.4 Duke

4.4.1 BAS Personal Statement

Why did you select your preferred track(s), (Finance, Forensics, Marketing, or Strategy), and how do they relate to your immediate career goals after completing the MQM: Business Analytics program? (2000 characters or less)

My professional goal is to use algorithmic game theory to optimize strategy in the realms of pricing, marketing, and perception. My long-term aspiration is to create go-to-market strategies for products that will improve everyone's lives.

The Marketing Track would prepare me to achieve that goal. Its rigorous coursework—combined with the hands-on, real-world applications in case studies, the Capstone,

group projects, competitions, and speaker interactions—would make me a flexible, able data-practitioner. My professional communication and collaborative abilities would evolve as I make my way through the core coursework. The Marketing Track classes—Digital Marketing, Market Intelligence, Customer Relationship Management, and Pricing—would develop my ability to solve the problems that most interest me; the track classes would confer upon me the skills I need to analytically understand market dynamics and, in turn, create successful strategies to navigate them.

I plan to use my four electives to also complete a combination of Data Analytics and Strategy coursework and make myself a more well-rounded business analyst. More specifically, through the Strategic Management, Empirical Economic Analysis, Decision Analytics and Modeling, and Data Visualization classes, I'll learn to more effectively leverage data to both gain a better sense of the market as well as communicate my findings. I selected the Marketing Track because, along with the core coursework and my chosen electives, it would help focus my quantitative capability on effectively bringing products into the world.

I have done great work at UTK, and am proud to call myself a Vol. But in order to realize my professional aspirations, I need to demonstrate my abilities and leadership at the highest competitive level. Succeeding Duke's world-class MQM program in the Marketing Track would allow me to do that. I am fully committed to my long-term goal, and Duke's MQM would be the natural next step.

4.4.2 BAS 25 Things

The 'Team Fuqua' spirit and community is one of the things that sets the Fuqua experience apart, and it is a concept that extends beyond the student body to include faculty, staff, and administration. Please share with us "25 Random Things" about you. These '25 Random Things' help us get to know someone's personality, their background, special talents, and more.

The Admissions Committee wants to get to know YOU - beyond the professional and academic achievements listed in your resume and transcript. Share with us important life experiences, your likes/dislikes, hobbies, achievements, fun facts, or anything that helps us understand what makes you who you are.

Please present your response in list form, numbered 1 to 25. Some points may be only a few words, while others may be longer. Your complete list should not exceed 2 pages. Do not copy the essay question in the document you upload with your application.

1. Growing up, I moved a lot. I've lived in New York, China, Taiwan, and Tennessee.
2. I've lost count of the number of schools I've gone to. I've spent a semester at at least ten.
3. The one constant in my life has been YMCA Camp Fuller sleepaway camp which I have attended since age seven.
4. When I was 14, I made $600 in six weeks arbitraging across cabin food markets at camp.

5. The achievement for which I am most proud is my passing of the Camp Fuller Skipper Test in 2017.
6. I don't know if it will ever be possible for me to give to camp as much as it has given to me. I'm trying my best to give as much as I can.
7. Card games are my bread and butter.
8. The traits I most value are honesty, loyalty, open-mindedness, and a good sense of humor.
9. I'm a night owl.
10. I am a middle child. My older sister is the cooler version of me. My younger brother is autistic.
11. I enjoy cooking food (especially desserts) for my friends.
12. I go to the gym five days a week. Overhead press is my favorite exercise.
13. Rom-Coms and Thrillers are my favorite movie genres.
14. I will eat almost anything; there's no food that I generally dislike.
15. There's nothing better than hanging out with friends, eating a meal, and then goofing off until the wee hours of the morning.
16. Naps are an integral part of my life.
17. If I had enough money for any one cause, I would create a boarding K-12 school that specifically targets fostered and orphaned children to deal with their traumas and become well-educated.
18. Sometimes I start laughing at a bad joke. Then I end up laughing at the faces that other people are making at me (like I'm crazy for enjoying the joke).
19. I am convinced that math is the most flexible undergraduate major. I have convinced several of my friends to add on or become math majors with my (logical) enthusiasm.
20. My grandmother had Alzheimers before she passed. One time she asked if my father and I were siblings. Alzheimers is terrifying.
21. I started taking classes with people 4 years my senior in seventh grade. I started dual-enrolling math classes at the University of Tennessee the day before my 14th birthday.
22. My family is non-traditional in most ways.
23. Rather than competing against others, I try to compete against myself; I always want who I am tomorrow to be better than who I was yesterday.

24. Everything is made better with good company.

25. I appreciate ridiculousness.

4.4.3 BAS Community Contribution

For our MQM: Business Analytics class, the Admissions team is looking for students who are eager to engage with, and learn from, their classmates. This learning takes place both inside and outside the classroom, as extracurricular engagement is an important part of the MQM experience. Describe how you would plan to be engaged outside of the classroom, and how your unique perspective, experiences, and passions will add to the MQM community.

Your response to this essay question should be no more than 350 words, with a font size of no less than 10-point. Please respond fully and concisely using 1.5 line spacing. Do not copy the essay question in the document you upload with your application.

I've always done my best to give back to my communities. As the UTK Math Ambassador, I've worked to recruit prospects and to establish the department's social-media presence. Friends tell me that my enthusiasm helped seal the deal for them to become math majors. As a peer mentor and finance club executive, I've procured resources and advised peers, helping them to navigate college and get excellent jobs. During my recent summers, I have worked at the YMCA Camp I attended as a child to teach campers to become strong sailors and, hopefully, future sailing instructors. This summer, I plan to be part of the camp's leadership team.

It is important and fulfilling to me to give back to the communities that have given me so much. I'd be excited to add Duke Fuqua to that list of communities. Between the team-based learning and competitions, the program would already give me a strong foundation of friends to interact with. I would hope to nurture those relationships: I would create study groups to prepare for difficult classes, host potlucks (kitchen and COVID willing), and, of course, explore the city with some of them. These gatherings wouldn't be MQM exclusive, though. In my free time, I would join the Culinary and Media, Entertainment and Sports Clubs to have extra groups of friends that I could pull in. Regarding my contributions to the Duke community, I plan to facilitate the development of a sense of community; I hope that the gatherings that I create can bring people from different educational backgrounds and skill sets together. When I graduate from Duke, I would hope to be graduating with classmates that I can forever call my friends.

I like to think I have a relatively unique viewpoint to add to the Fuqua community. I'm passionate about math, programming, and business. My enthusiasm motivates others to be their best. I keep an open mind and am receptive to change. I have an expansive, global perspective. I'm excited to play a role in further developing the Fuqua community.

4.5 Georgia Tech

4.5.1 BAS Personal Statement

When I was six years old, I went to the park and sold most of my toys. My pricing scheme was ludicrous: every toy cost a nickel, except my 64- count crayon box which cost $13.99 ($3.99 new in stores). The majority of my depreciated assets quickly sold out, and I made 75 cents, a set of happy customers, a 100 percent net margin (impressive, I know), and was left with a 64-count crayon box.

Since then, I've been interested in pricing and marketing strategies. Why hadn't my crayons sold? Why had everything else? How might I have increased my take-home? This interest has been encouraged by my entrepreneurial spirit. At summer camp, I was frequently found running massage parlors, trading Magic: the Gathering cards, and arbitraging across cabin food markets. By the age of fourteen, I had the camp dynamic figured out: in six weeks, I made $600, another set of happy customers, and an 85 percent net margin by taking advantage of the snack supply limitations inherent to extended-stay sleepaway camps.

These were valuable and formative experiences, so I want to understand these concepts—pricing, markets, customers—on a larger scale. My professional goal is to help create and implement successful go-to-market strategies. My longer-term aspiration is to provide value and add social surplus to the world by doing this work for products I respect at a company whose culture and leadership I admire.

Every successful product has a producer and a consumer. Maximum social surplus is achieved when the excess value of the consumer buying the good plus the profits obtained from the producer selling the good is maximized over the long term. To illustrate the concept of social surplus, consider Google's Ads Auction. Each potential advertiser on Google values an ad display differently, and the bids it places mirror that. Google stipulates that the winners of the ad spaces (the highest bidders, in order), will pay what the bidder below them bid. This pricing scheme—for non-obvious game-theoretic reasons—actually incentivizes participants to bid their true value, an outcome which would—again for game-theoretic reasons—not be achieved by a traditional auction. Using rules which incentivize "honest" bidding guarantees that the ad space will in fact go to the participant who values it most, and thereby guarantees the maximization of social surplus, while retaining as revenue an amount which would not even be available unless the "best" buyer was the winner.

But this leaves the question of how a company can determine its "true value" for the ad space. Answering this requires a theory-informed quantitative approach. In the world of Google ads this question is not so difficult: the percentage of ad appearances that are converted to "clicks" and the average revenue per click quickly reveal the "true value" of an ad placement. But calculating other similar-sounding "true value" problems may be much more difficult, and yet increasingly important, as companies seek to optimize their value-proposition for their customers. Today's digital commerce generates a deluge of data of nearly every category that is just waiting for the opportunity to be effectively utilized in this context. Companies that don't have these analytic capabilities will quickly fall behind those that do. In order to execute on my vision of delivering value and social surplus in this day and age, I need to become an analytics-savvy leader.

I have a record of seeking out social surplus and finding ways to execute. As the UTK

Math Ambassador, I've worked to recruit prospects and to establish the department's social-media presence. Friends tell me that my enthusiasm helped seal the deal for them to become math majors. As a peer mentor and finance club executive, I've procured resources and advised peers, helping them to navigate college and get excellent jobs. During my recent summers, I have worked tirelessly at the YMCA Camp I attended as a child to teach campers to become strong sailors and, hopefully, future sailing instructors themselves. This summer, I hope to be part of the camp's leadership team.

I am excited and prepared to acquire the skills that will distinguish the future's most successful quantitative pricing and marketing analysts. My greatest strength is my breadth of foundational skills. I've pursued my passion for quantitatively-based business through the academic disciplines of math, programming, and finance. And I have challenged myself aggressively while I have done so. The day before my fourteenth birthday, I started dual-enrollment classes at UTK. In the five-and-a-half years since, I've excelled in graduate math classes, earned a spot on the Superball video game automation challenge leaderboards, received funding for professor-mentored autism research, and helped to generate six percent alpha managing $300,000 of university-endowed funding. Though there were some early organizational difficulties, I've maintained a 4.0 GPA since turning eighteen.

I am proud of these achievements, but in order to become the analyst I want to be, I must integrate the seemingly disjoint skills they are based on. Georgia Tech's MS in Analytics program would create a perfect environment for me to do that. Its rigorous, theory-based coursework—combined with hands-on, real-world applications in case studies, the capstone, and conferences—would help fuse my passions and make me a flexible, able data-practitioner. The Business Analytics Track—through courses like Game Theory, Marketing Analytics and Pricing Strategy, Pricing Analytics and Revenue Management, and others—would provide depth to that fusion and develop my ability to solve the problems that most interest me. The capstone Applied Analytics Practicum would allow me to integrate all my capabilities to solve a real-world problem and to demonstrate that I had done so. Ultimately, succeeding at the world-class Analytics program that Georgia Tech runs would inspire confidence, both for myself and for prospective employers, that I should be entrusted to construct data- informed strategies, policies, and decisions. I am fully committed to my long-term goal, and Georgia Tech's MS in Analytics is the natural next step.

4.6 MIT

4.6.1 Personal Statement Rough Draft 1

Please describe your reason for pursuing the Master of Business Analytics degree. What do you hope to gain from the program? What are your career aspirations? (500 words or less)
Community, Academic Rigor, and Jobs

I have a passion for math, business, and computer science, but, so far, I have struggled to bring these threads together. I have pursued each of these passions as rigorously as I could in my coursework, research, and work experience, excelling in graduate math classes, earning a spot on the CS "Superball" video-game automation leaderboards, researching and predicting autism using quantitative techniques, and helping to generate 6% alpha managing $300,000. That said, I don't fully understand how to use all of my talents in concert. The MBAn at MIT seems like the natural next step for me. The rigorous coursework and hands-on opportunities in the form of the capstone, analytics lab, and—with luck—research assistantships would elevate my academic understanding and teach me how to apply what I've learned to the real world.

When I first started dual-enrollment the day before my fourteenth birthday, I was organizationally out of my depth. I was lucky enough to have Spencer McDonald in my class. He was another dual-enrollee who offered friendship and guidance, and I instantly recognized him as one of the smartest people I'd ever met. Though I doubt he knows it, his kindness, talent, and mentorship have inspired me at every step of my college career. He is now a master's of aerospace engineering candidate at MIT. His presence there is anecdotal evidence that MIT is home to the truly exceptional. Working collaboratively in a community of diverse and incredible people would continue to both expand my perspective and inspire me. MIT is a place where ideas flow freely: I know that I would learn so much from the incredible people around me and hope that I could offer my own contributions in turn. Ultimately, I hope that by collaborating on class projects, the capstone partnership, and possible research assistantships, I could create lasting bonds with many of my peers and teachers.

My short-term career goal is to work at one of the MBB consulting firms. Working in consulting would allow me to continue to explore the world through a variety of industries' lenses. I have a long-term aspiration of then focusing all I'd learned to drive large-scale impact as an executive leading a global corporation. MIT's MBAn would facilitate the fulfillment of these ambitions. Consulting jobs represent the largest portion of the graduating class' accepted offers, so I would have a strong alumni network I could reach out to for informational interviews. The data analytics and management consulting clubs would help in this vein, too. From improving my resume to negotiating offers in the MBAn Career Core, the CDO (and my peers) would effectively prepare me to effectively navigate the job market at every stage of my career.

Commented [1]: Nothing Personal

Commented [2]: Platitudes

Commented [3]: Too career focused imo

4.6.2 Personal Statement Rough Draft 2

Please describe your reason for pursuing the Master of Business Analytics degree. What do you hope to gain from the program? What are your career aspirations? (500 Word Max)

My intellectual passions are math, programming, and business. I am looking for a program that would both bring these threads together. MIT's MBAn does this in an environment in an environment I find particularly appealing: a tightly-knit, collaborative community of capable and adaptable aspiring business leaders. Personal involvement, development of worldly perspective, and lifelong-friendships are motivated by the small, diverse cohort. The rigorous, theory-based coursework—combined with the hands-on, "real world" applications in Analytics Lab, the Capstone, and research assistantships—cultivates flexible, able data practitioners. Candidates develop strategies to accomplish their career goals through the MBAn Career Core. Collaboration is an integral part of each of these segments: team-project oriented classes, approachable teachers, capstone partnerships, and peer-reviewed resumes and interviews. The program's dedication to facilitating growth and community is clear to see from 934 miles away.

I am on my own mission: to learn by challenging myself and to use what I've learned to help my community. I started dual-enrollment the day before my fourteenth birthday. I went to UTK to have immediate access to higher-level classes. I haven't stopped challenging myself. And I have also been a math department ambassador, during which time I converted several friends to math majors through my enthusiasm. As a peer mentor and club executive, I procure resources and give advice to my peers to help them navigate college and the job market. I teach sailing at the summer camp I've been going to since I was seven and, this summer, I plan to be part of its leadership team. MIT's MBAn would challenge me and keep me learning while feeding right into my long-term career aspiration is to use data to drive real impact at a firm with a strong corporate culture, for example Microsoft or Bain.

As far as I can tell, I've 'topped out' at UTK: I've had a 4.0 since I turned 18, excelled in graduate math classes, earned a spot on the "Superball Challenge" video-game automation leaderboards, received funding for professor-mentored autism research, and helped to generate 6% alpha managing $300,000 of university endowed funding. I have done great work at UTK and am proud to call myself a Volunteer. But I need to demonstrate my abilities at a higher competitive level to gain the confidence of the most demanding employers. Bain, for instance, has four UTK alums among its 14,856 employees. Two of those four are in HR, the third went to Wharton for an MBA before joining, and the last is an external advisor who also has an MBA. Microsoft's employment statistics are similar: roughly one in every 2,057 Microsoft employees graduated from UTK. Succeeding at MIT's world-class MBAn program would make me more visible to world-class employers. I am fully committed to my long-term goal, and I know that MIT's MBAn would streamline my path to it.

Commented [1]: Long and slow

Commented [2]: Sorta many disconnected points. A little bit braggy. Career aspiration is non-specific

Commented [3]: Could be read like I'm taking a crap on UTK

4.6.3 Personal Statement Rough Draft 3

Please describe your reason for pursuing the Master of Business Analytics degree. What do you hope to gain from the program? What are your career aspirations? (500 Word Max)

My intellectual passions are math, programming, and business. I am looking for a program that will bring these threads together in both theory and practice. Additionally, much of the data collected today is under-utilized, and I'm eager to be part of the community expanding the horizons of how it's used. My professional goal is to use data to drive real impact at a firm with a strong corporate culture, for example Microsoft or Bain.

MIT's MBAn would prepare me to achieve that goal. Its rigorous, theory-based coursework—combined with the hands-on, real-world applications in Analytics Lab, the Capstone, and research assistantships—cultivates flexible, able data practitioners. Candidates develop strategies to accomplish their career goals through the MBAn Career Core. The program's small, diverse cohort fosters the development of global perspective and lifelong-friendships. I appreciate that collaboration plays such an integral role in each of these segments with team-project oriented classes, approachable teachers, capstone partnerships, and peer-reviewed resumes and interviews. The program's dedication to facilitating its students' growth while encouraging community is very appealing to me.

The day before my fourteenth birthday, I started dual enrollment classes at the University of Tennessee (UTK). Five and a half years later, I've 'topped out' at UTK: I've had a 4.0 GPA since I turned 18, excelled in graduate math classes, earned a spot on the "Superball Challenge" video-game automation leaderboards, received funding for professor-mentored autism research, and helped to generate 6% alpha managing $300,000 of university endowed funding. I've done my best to give back to my communities. I have been a math department ambassador, eagerly working to establish the social-media presence of the math department. I have even persuaded several of my friends to become math majors through my enthusiasm. As a peer mentor and club executive, I procure resources and give advice to my peers to help them to navigate college and get prestigious jobs. I teach sailing at the summer camp I've been going to since I was seven and, this summer, I plan to be part of its leadership team.

I have done great work at UTK and am proud to call myself a Volunteer. But in order to accomplish my professional goals, I need to demonstrate my abilities at the highest competitive level. Succeeding at MIT's world-class MBAn program would help me do that. I am fully committed to my long-term goal, and MIT's MBAn would be the natural next step.

Commented [1]: This is a weak "why masters in X". Still not personal enough

Commented [2]: Non-specific

Commented [3]: Covering two topics: my academic ability and my leadership ability

4.6.4 Personal Statement Rough Draft 4

Please describe your reason for pursuing the Master of Business Analytics degree. What do you hope to gain from the program? What are your career aspirations? (500 Word Max)

There I sat, a freshman at the University of Tennessee (UTK), silently micro-adjusting my 'greedy' Superball Challenge video-game automation algorithm for what felt like the thousandth time as its delivery deadline quickly approached. I was perplexed: How had those topping the leaderboards achieved their high scores?

I later learned that they had used machine-learning techniques. Soon after, I was programming my own machine-learning tools in Python. I was blown away by the accuracy of the models that even my untrained hand could create: After some iteration, my breast-cancer and spam classification models achieved 99.1% and 94.8% testing set accuracy respectively. The question that leapt to my mind was, "How can these tools be used strategically in business?"

I am looking for a graduate-school program that will help me answer that question and bring together my passions for math, business, and programming. My professional goal is to use algorithmic game theory to optimize strategy in the realms of pricing, marketing, and perception. My long-term aspiration is to do this at a company whose culture and leadership I admire.

MIT's MBAn program would prepare me to achieve that goal. Its rigorous, theory-based coursework—combined with the hands-on, real-world applications in Analytics Lab, the Capstone, and research assistantships—would make me a flexible, able data-practitioner. The program's small size fosters lifelong friendships; its diversity cultivates global perspective; and its cooperative approach—with team-project oriented classes, approachable teachers, capstone partnerships, and peer-reviewed resumes and interviews—encourages collaboration. Its focus on building a collaborative community is very appealing to me. As is MIT's reputation for excellence.

I've always sought to challenge myself: The day before my fourteenth birthday, I started dual-enrollment classes at UTK. Five and a half years later, I've topped out there. I've had a 4.0 GPA since I turned 18, excelled in graduate math classes, earned a spot on the Superball Challenge leaderboards, received funding for professor-mentored autism research, and helped to generate 6% alpha managing $300,000 of university-endowed funding.

I've also always done my best to give back to my communities. As the UTK Math Ambassador, I've worked to recruit prospects and to establish the department's social-media presence. Friends tell me that my enthusiasm helped seal the deal for them to become math majors. As a peer mentor and finance club executive, I've procured resources and advised peers, helping them to navigate college and get excellent jobs. During my summers, I have worked tirelessly to make sure that campers at the camp I have attended for 10 years will become strong sailing instructors. This summer, I plan to be part of the camp's leadership team.

I have done great work at UTK. I am proud to call myself a Volunteer. But in order to realize my professional aspirations, I need to demonstrate my abilities and leadership at the highest competitive level. Succeeding at MIT's world-class MBAn program would allow me to

Commented [1]: Finally personal

Commented [2]: Weak aspiration//non-specific

Commented [3]: Prestige grab bad

Commented [4]: not formal

Commented [5]: Could be seen as me talking poorly about the school

Commented [6R5]: or braggy

4.6.5 BAS Final Personal Statement

Please describe your reason for pursuing the Master of Business Analytics degree. What do you hope to gain from the program? What are your career aspirations? (500 Word Max)

There I sat, a freshman at the University of Tennessee (UTK), silently micro-adjusting my 'greedy' Superball Challenge video-game automation algorithm for what felt like the thousandth time as its delivery deadline quickly approached. I was perplexed: How had those topping the leaderboards achieved their high scores?

I later learned that they had used machine-learning techniques. Soon after, I was programming my own machine-learning tools in Python. I was blown away by the accuracy of the models that even my untrained hand could create: After some iteration, my breast-cancer and spam classification models achieved 99.1% and 94.8% testing set accuracy respectively. The question that leapt to my mind was, "How can these tools be used strategically in business?"

Commented [1]: Personal Anecdote//Why Masters in Business Analytics

A business analytics graduate-school program would help me answer that question and bring together my passions for math, business, and programming. My professional goal is to use algorithmic game theory to optimize strategy in the realms of pricing, marketing, and perception. My long-term aspiration is to create go-to-market strategies for products that will improve everyone's lives.

Commented [2]: Why Masters Continued/Post-masters Goals

MIT's MBAn program would prepare me to achieve that goal. Its rigorous, theory-based coursework—combined with the hands-on, real-world applications in Analytics Lab, the Capstone, and research assistantships—would make me a flexible, able data-practitioner. Its electives—through courses like Game Theory for Strategic Advantage, Pricing, and Consumer Behaviour—would develop my ability to solve the problems that most interest me. I find its focus on building a collaborative community through team-project oriented classes, approachable teachers, capstone partnerships, and peer-reviewed resumes and interviews particularly appealing.

Commented [3]: Program Specifics -- Help me engage my interests

4.6.6 BAS Video Essays

MIT MBAN Video Essay 1
MIT MBAN Video Essay 2

4.6.7 BAS Interview Research Presentation

Autism's Genetic Selection

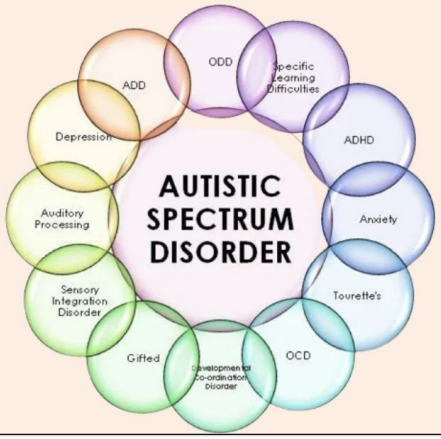
Using Deep Neural Networks with Information Complexity for Classification

University of Tennessee
Researcher: *Harry Channing*
Faculty Advisor: *Dr. Hamparsum Bozdogan*

Problem

Autism Spectrum Disorder (ASD) is difficult to diagnose and treat:

- "If you've met one person with autism, you've met one person with autism."
- Symptoms vary greatly
- Autistic individuals have unusual interactions so are regularly misunderstood
- How can we use genetic data to more accurately and efficiently diagnose ASD?

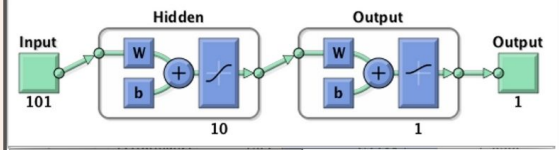


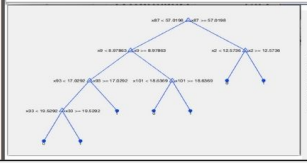
Data

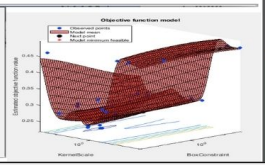
- Existing S8 dataset from "Selection and Classification of Gene Expression in Autism Disorder: Use of a Combination of Statistical Filters and a GBPSO-SVM Algorithm"
- 101 genetic attributes and 124 observations

Method

- Visualize S8 dataset
- Use sparse PCA to reduce the dimensions of the data
- Feature engineer to create new data sets
- Create neural net, classification tree, and SVM models using created and S8 datasets

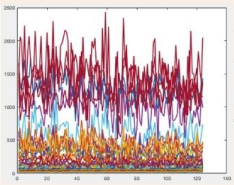






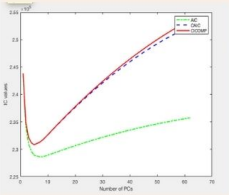
Results

Visualization



- Genetic profiles don't largely separate people with and without autism

SPCA CICOMP Reduction



- CICOMP criterion with SPCA reduce dimensions from 101 to five
- Repeating 5 data subset created from most prevalent attributes

Models' Accuracy

Accuracy of Models on Test	S8 Dataset	CICOMP SPCA	Repeating 5	Average
Neural Net	78.9%	63.2%	52.6%	64.9%
Classification Trees	63.2%	68.4%	63.2%	64.9%
SVM	47.4%	57.9%	52.6%	52.6%
Average	63.2%	63.2%	56.1%	60.8%

- Maximum testing accuracy of 78.9%
- CICOMP SPCA, on average, performs as well as full dataset
- SVM models underperform
- Repeating 5 models perform above better than naive expectations

Next Steps

- More Data
- Predicting where on spectrum

4.6.8 BAS Interview Research Presentation Writeup

Autism Spectrum Disorder (ASD) refers to a brain development abnormality that impacts perception of both the environment and others, which can encourage restricted or repetitive patterns of behaviour and result in significant challenges in social interaction. Early intervention—in combination with continued accommodations—for children with ASD can have a significant impact on long-term outcomes in terms of the amelioration of core autism symptoms (Estes et al).

Unfortunately, it can be difficult to implement that early intervention. ASD manifests itself in a variety of behaviors, each with its own varying difficulties and levels of severity, so ASD can be difficult to diagnose properly; ASD is diagnosed on the basis of behavioral observation, so those with less pronounced difficulties can easily be left misdiagnosed or undiagnosed. Researchers sometimes remark, "If you've met one person with autism, you've met one person with autism" (Shore).

The goal of this project is to substantially reduce diagnosis difficulty by using a subject's genome to predict whether or not they have ASD. These predictions are made through the use of visualization tools, sparse PCA, and a variety of machine-learning techniques. If accurate, these predictions can help to direct the policies and systems that provide early support to those with ASD. As more data becomes available, more accurate predictions can be made. Hopefully, one day, these predictions can even extend to precise diagnosis of ASD sub-characteristics

4.7 Northwestern

4.7.1 BAS Personal Statement

Discuss a time you've worked on a team for a curricular competition (ie hackathon) or to fulfill a curricular or professional project. What was the team dynamic like? What role did you play? What did you learn about working with others during this project? Give an example of a time when conflict arose within your team and how you handled it. * (Limit 200 words)

This last year, I've had the pleasure of being an equity researcher and portfolio manager on the McClain Torch Fund. In a small team, I helped to manage $300,000 of university endowed funding with a value approach. When I joined, I was lost and suffering from imposter syndrome. I was quickly taken under the wing of one of the senior managers and made to feel competent. Last semester, I was the senior researcher making the newbies comfortable and bringing them up to speed.

The key collaborative takeaway I had from my time in the fund is that, especially when working in a group, it is necessary to both make everyone feel comfortable, as well as clarify the expectations for each group member. In tandem, these group programmings limit stress and improve work efficacy, which makes for a happy, effective group.

One time, one of the members proposed we sell one of our holdings. I disputed his thesis. I presented a list of reasons supporting our investment and some questions that might bear on an informed resolution of the issue. After we debated, I sat out of the team's vote so as

to ensure an objective decision was made.

Discuss the last time you encountered conflict with a colleague (in school or at work). How did you handle the conflict at the time? How did your colleague respond? If you relived that conflict now, what would you do differently? * (Limit 200 words)

It was the summer of 2019. Two of my best friends and I had the responsibility of instructing the highest level of camp sailors. My friends' approach to camp sailing was very free-form, fun-driven, while mine was more academic leaning.

This difference in style eventually came to a head. It was a rainy day in the last week of the season, and they were sitting in on a lecture I had planned and was presenting. They continuously interrupted and made jokes, so I threw them out.

They thought I was being absurd. They made the point that, since it was the last week of the year, the kids would have been uninterested, so we should have been goofing off instead. I thought one of the most fun and important parts of learning sailing were lectures, but the same wasn't true for them.

Because we hadn't created a set curriculum, our teaching expectations diverged as the summer went on. If I could go back, I would have proactively engaged the group to agree on goals and methods for the program at the start of the summer. These changes would have prevented our argument and helped us to better coach the campers.

Discuss your greatest strength and how it will help you in your academic and professional career. How have you built and honed this strength? Give an example of how it has helped you get where you are today. * (Limit 200 words)

My greatest strength is my breadth of foundational skills. I've pursued my passion for quantitatively-based business through the academic disciplines of math, programming, and finance. And I have challenged myself aggressively while I have done so. The day before my fourteenth birthday, I started dual-enrollment classes at UTK. In the five-and-a-half years since, I've excelled in graduate math classes, earned a spot on the Superball video game automation challenge leaderboards, received funding for professor-mentored autism research, and helped to generate six percent alpha managing $300,000 of university-endowed funding.

In many ways, the development of this strength has leapfrogged me from opportunity to opportunity. Had I not taken both business and computer science classes, I wouldn't have had the opportunity to do my autism research. Had I not had quantitative depth, I would not have been able to contribute as much to the team managing $300,000. Overall, I think the breadth of my foundational skills will help me as I continue to progress through my academic and professional careers because, in tandem, they give me the ability to bring additional perspectives and networking resources to a group working on a novel or interdisciplinary problem.

Discuss your greatest weakness. How has it been a detriment to your academic and/or professional career? To what lengths have you gone to improve? What plans do you have for further improvement? * (Limit 200 words)

My greatest weakness is that the threads of my academic skills, mathematics, programming, and business, have yet to be woven together. I originally joined the McClain Torch Fund (a $300,000 student managed portfolio) with the hopes of using my quantitative ability to offset my lack of experience as an equity researcher. But I found that these skills weren't too helpful to the roles I needed to fulfill at Torch. Instead I developed traditional equity-analyst skills. I regularly used a variety of data sources (like Bloomberg, SEC Edgar, and earnings calls) to create fundamentals-driven investment proposals. Surprisingly, I realized that, given the immense amount of data now available to investors, a key skill now is being able to reduce that plethora of information down to a small actionable subset.

This realization has reinvigorated my aspiration to use my math and programming skills in a business context, but I see that I will have to hone them for that domain. That's why I'm applying to your MSiA. Its rigorous, theory-based coursework—combined with the hands-on, real-world applications in the Industry Practicum, Capstone, and internship—would make me a flexible, able data-practitioner. Its industrial focus would integrate my quantitative and business skills and interests.

4.7.2 BAS Video Essay

Northwestern Analytics Video Essay

4.8 NYU

4.8.1 QF Personal Statement

Upload a Statement of Purpose here. Your Statement of Purpose should describe how your professional and academic background has prepared you to pursue an advanced degree at the NYU Tandon School of Engineering. Outline your reasons for undertaking your degree program, your future plans and why you've chosen NYU Tandon School of Engineering. Statements should be 12pt font and no more than two pages, double-spaced, in length.

There I sat, a freshman at the University of Tennessee (UTK), silently micro-adjusting my 'greedy' Superball Challenge video-game automation algorithm for what felt like the thousandth time as its delivery deadline quickly approached. I was perplexed: How had those topping the leaderboards achieved their high scores?

I later learned that they had used machine-learning techniques. Soon after, I was programming my own machine-learning tools in Python. I was blown away by the accuracy of the models that even my untrained hand could create: After some iteration, my breast-cancer and spam classification models achieved 99.1% and 94.8% testing set accuracy respectively. The question that leapt to my mind was, "How can these tools be used strategically in business?"

Soon after, I joined the McClain Torch Fund to manage a $300,000 all-equity portfolio of university endowed funding with a few peers. There, I regularly used a variety of data sources (like Bloomberg, SEC Edgar, and earnings calls) to create and inform fundamentals-driven investment proposals. This experience has clarified for me that, given the immense amount

of data now available to investors, one critical skill is being able to sift through and reduce that plethora to the key variables pertinent to validating a particular investment thesis; I had access to a wealth of data but I couldn't leverage it as efficiently as I would have liked.

Today's digital commerce and financial comparisons generate a deluge of data of nearly every category. This job of making that data useful is, however, a job of a progressively larger scale, requiring more and more automation to manage. Models generated by quantitative tools will allow practitioners to outperform their peers relying solely on intuitive understandings of the marketplace. Investors operating without the backing of quantitative tools will be less competitive and find themselves unable to deliver value to their clients. This raises the key question: How can one use data most effectively to inform investment proposals?

I am looking for a graduate-school program that will help me answer that question and bring together my passions for math, business, and programming. My professional goal is to combine fundamental and quantitative research styles to inform my pricing, valuation, and investment strategies. My long-term aspiration is to use these strategies to create investor portfolios that outperform across a wide spectrum of risk and domain profiles.

NYU's MSFE program would prepare me to achieve that goal. Its rigorous, theory-based coursework—combined with the hands-on, real-world applications in the capstone internships or project—would make me a flexible, able data-practitioner. Its electives—through courses like Advanced Valuation Theory, Behavioral Finance, and Quantitative Portfolio Management—would develop my ability to solve the problems that most interest me. Its focus on making students career-ready is very appealing to me.

I've always sought to challenge myself: The day before my fourteenth birthday, I started dual-enrollment classes at UTK. Five and a half years later, I am finishing at UTK and looking for my next challenge. I've had a 4.0 GPA since I turned 18, excelled in graduate math classes, earned a spot on the Superball Challenge leaderboards, received funding for professor-mentored autism research, and helped to generate 6% alpha managing $300,000 of university-endowed funding. I have done great work at UTK. I am proud to call myself a Volunteer. My academic and work experiences have prepared me to acquire the skills that will distinguish successful future financial analysts. But in order to realize my professional aspirations, I need to demonstrate my abilities at the highest competitive level. Succeeding at NYU's world-class MSFE program would allow me to do that. I am fully committed to my long-term goal, and NYU's MSFE would be the natural next step.

4.8.2 QF Video Essay

NYU Quant Video Essay

4.8.3 DS Personal Statement

In a concisely written statement, please describe your past and present work as it relates to your intended field of study, your educational objectives, and your career goals. In addition, please include your intellectual and professional reasons for choosing your field of study and why your studies/research can best be done at the Graduate School of Arts and Science at NYU. The statement should not exceed two double-spaced pages.

There I sat, a freshman at the University of Tennessee (UTK), silently micro-adjusting my 'greedy' Superball Challenge video-game automation algorithm for what felt like the thousandth time as its delivery deadline quickly approached. I was perplexed: How had those topping the leaderboards achieved their high scores?

I later learned that they had used machine-learning techniques. Soon after, I was programming my own machine-learning tools in Python. I was blown away by the accuracy of the models that even my untrained hand could create: After some iteration, my breast-cancer and spam classification models achieved 99.1% and 94.8% testing set accuracy respectively. The question that leapt to my mind was, "How can these tools be used strategically in business?"

I am looking for a graduate-school program that will help me answer that question and bring together my passions for math, business, and programming. My professional goal is to use algorithmic game theory to optimize strategy in the realms of pricing, marketing, and perception. My long-term aspiration is to is to create go-to-market strategies for products that will improve everyone's lives.

NYU's MSDS program would prepare me to achieve that goal. Its rigorous, theory-based coursework—combined with the hands-on, real-world applications in the capstone, the summer research initiative, and possible internships—would make me a flexible, able data-practitioner. Its Industry Concentration—through courses such as Text as Data, Large-Scale Visual Analytics, and Practical Training for Data Science—would develop my ability to pragmatically solve the problems that most interest me. Its focus on setting its students up for career success is very appealing to me. As is NYU's reputation for excellence.

I've always sought to challenge myself: The day before my fourteenth birthday, I started dual-enrollment classes at UTK. Five and a half years later, I'm looking for my next challenge. I've had a 4.0 GPA since I turned 18, excelled in graduate math classes, earned a spot on the Superball Challenge leaderboards, received funding for professor-mentored autism research, and helped to generate 6% alpha managing $300,000 of university-endowed funding.

I've also always done my best to give back to my communities. As the UTK Math Ambassador, I've worked to recruit prospects and to establish the department's social-media presence. Friends tell me that my enthusiasm helped seal the deal for them to become math majors. As a peer mentor and finance club executive, I've procured resources and advised peers, helping them to navigate college and get excellent jobs. During my recent summers, I have worked tirelessly at the YMCA Camp I attended as a child to teach campers to become strong sailors and, hopefully, future sailing instructors themselves. This summer, I plan to be part of the camp's leadership team.

I have done great work at UTK. I am proud to call myself a Volunteer. But in order to realize my professional aspirations, I need to demonstrate my abilities and leadership at the highest competitive level. Succeeding at NYU's world-class MSDS program would allow me to do that. I am fully committed to my long-term goal, and NYU's MSDS would be the natural next step.

4.8.4 Statement of Diversity

The purpose of the Personal History Statement is to get to know you as an individual and as a potential graduate student, and to understand how your background and/or academic pursuits will contribute to the diversity of our school. You may consider discussing any of the following questions:

- How has your personal background motivated you to pursue a graduate degree? For example, how have educational; familial; cultural; socioeconomic; first-generation college status; racial, ethnic, gender, or other identity; or other personal experiences or challenges affected your decision to pursue graduate education?
- Have you worked in community services or other outreach services that affected your decision to pursue graduate education?
- Do you plan on doing research or working in areas that will serve under-privileged populations, under-represented minorities, or other diverse populations?
- Will your planned studies broaden ways to promote diversity and/or widen our view of diversity?

Please note the following important instructions:

- The Personal History Statement is not meant to be a general autobiography.
- The statement should not exceed two double-spaced pages.
- The statement must be submitted along with your application. Late submissions and corrections/updates to already-submitted statements will not be accepted.
- The Personal History Statement should not duplicate what you wrote in your Statement of Academic Purpose.

Growing up, I moved a lot. I've lived in New York, China, Taiwan, and Tennessee. I've lost count of the number of schools I've gone to. I've spent significant time at at least ten. I've always made terrific friends in each of these places, but I've also always been culturally different from my peers.

Skipping grades didn't help. I was already young in my original grade. By the time I was in seventh grade, I was taking math classes with kids four years my senior. Soon enough, I was keeping my age under wraps. It was passable, at least—I was lucky enough to be tall, big, and mature for my age. The first university friends I made during my dual enrollment ghosted me when they discovered I was fifteen when I got carded attempting to get into a rated R movie. I was somehow too mature for my age and too young for my peers.

Now, I am a math and finance major at The University of Tennessee. My math friends joke that I'm a business person. My business friends say that I am a math person. My

southern friends think I'm a Yankee. My northeastern friends think I'm a southerner. Everyone seems to want to classify me as some singular thing.

But I'm not. I am culturally an amalgamation of the northeast, south, and East. I am just as much a senior in college as anyone else, no matter my age. I am a math and business person. I will not apologize for my non-standard background; I will not apologize for pursuing my interests.

I've never fit in, and I'm grateful for it. I can make friends anywhere I go. I've had unique educational experiences and get to follow my own path. I no longer worry about what other people think of me. I keep an open mind and am receptive to change. I have an expanded, global perspective. I know what it feels like to be excluded and treated unfairly.

To that point, I want to be a trailblazer. I want to prove that it's alright to be different and help that minority be successful. Everyone is unique. I don't want anyone to be bullied for it, like I was. I want everyone to feel understood and included. Though I am far from the first person to acknowledge this problem, I hope that I can be one of the many to fix it. I've already worked hard in the pursuit of this goal. That's why I did autism classification research: improved classification accuracy can help ASD kids, especially high-functioning ASD kids, to be treated fairly. As a peer mentor, I've worked hard to make sure that first-year business students integrate well in an unfamiliar, diverse environment. Every success I have in my career will help me to both set an example for other "different" kids, but also give me a greater ability to create more inclusive systems that help them. A graduate degree from NYU would help me to achieve more.

4.9 Penn

4.9.1 MSE DS Personal Statement

Personal Statement – we recommend the following guidelines for the personal statement:

- No more than two pages in a readable font/size:
- Use answers to the following questions to guide your writing; please provide detailed and specific examples from academia, industry or research when possible:
  - Why are you interested in this program?
  - What have you done that makes you a great candidate?
  - How will you benefit from the program?
  - How do you plan to contribute to the student community in SEAS while you're here?
  - Why will you succeed in the program?
  - What will you do/accomplish once you have completed the program?

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I am looking for a graduate-school program that will help me answer that question and bring together my passions for math, business, and programming. My professional goal is to use data to optimize strategy in the realms of pricing, marketing, and perception. My long-term aspiration is to create go-to-market strategies for products that will improve everyone's lives.

UPenn's MSE in Data Science program would prepare me to achieve that goal. Its rigorous, theory-based coursework—combined with the hands-on, real-world applications in DATS Practicum, a summer internship, and possible research assistantships—would make me a flexible, able data-practitioner. Its coursework—through courses like Predictive Analytics for Business, Applied Probability Models in Marketing, and Forecasting Methods for Management—would develop my ability to solve the problems that most interest me. I've always sought to challenge myself: The day before my fourteenth birthday, I started dual-enrollment classes at UTK. Five and a half years later, I'm looking for my next challenge. I've had a 4.0 GPA since I turned 18, excelled in graduate math classes, earned a spot on the Superball Challenge leaderboards, received funding for professor-mentored autism research, and helped to generate 6% alpha managing $300,000 of university-endowed funding.

I've also always done my best to give back to my communities. As the UTK Math Ambassador, I've worked to recruit prospects and to establish the department's social-media presence. Friends tell me that my enthusiasm helped seal the deal for them to become math majors. As a peer mentor and finance club executive, I've procured resources and advised peers, helping them to navigate college and get excellent jobs. During my recent summers, I have worked at the YMCA Camp I attended as a child to teach campers to become strong sailors and, hopefully, future sailing instructors. This summer, I plan to be part of the camp's leadership team.

I have done great work at UTK. I am proud to call myself a Volunteer. But in order to realize my professional aspirations, I need to demonstrate my abilities and leadership at the highest competitive level. Succeeding at UPenn's world-class MSE in Data Science program would allow me to do that. I am fully committed to my long-term goal, and UPenn's MSE in Data Science would be the natural next step.

4.10 UCLA

4.10.1 BAS Statement of Purpose

Please respond to the following. Your statement can be up to 500 words in length (approximately 1-page, single spaced, using 1-inch margins and 12-point font). You do not need to answer every question; focus on the elements that you feel are most relevant to your

candidacy.

- What is your purpose in applying for graduate study in your specified degree program? Describe your area(s) of interest, including any subfield(s) or interdisciplinary interests.
- What experiences have prepared you for advanced study or research in this degree program? What relevant skills have you gained from these experiences? Have your experiences led to specific or tangible outcomes that would support your potential to contribute to this field (examples: performances, publications, presentations, awards or recognitions)?
- What additional information about your past experience may aid the selection committee in evaluating your preparation and aptitude for graduate study at UCLA? For example, you may wish to describe research, employment, teaching, service, artistic or international experiences through which you have developed skills in leadership, communication, project management, teamwork, or other areas.
- Why is the UCLA graduate program to which you are applying is the best place for you to pursue your academic goals? If you are applying for a research master's or doctoral program, we encourage you to indicate specific research interests and potential faculty mentors.
- What are your plans for your career after earning this degree?

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I later learned that they had used machine-learning techniques. Soon after, I was programming my own machine-learning tools in Python. I was blown away by the accuracy of the models that even my untrained hand could create: After some iteration, my breast-cancer and spam classification models achieved 99.1% and 94.8% testing set accuracy respectively. The question that leapt to my mind was, "How can these tools be used strategically in business?"

I am looking for a graduate-school program that will help me answer that question and bring together my passions for math, business, and programming. My professional goal is to use algorithmic game theory to optimize strategy in the realms of pricing, marketing, and perception. My long-term aspiration is to create go-to-market strategies for products that will improve everyone's lives

UCLA's MSBA program would prepare me to achieve that goal. Its rigorous, theory-based coursework—combined with the hands-on, real-world applications in case studies, the AAP capstone, and the summer internship—would make me a flexible, able data-practitioner. Its Core—through courses like Competitive Analytics, Customer Analytics, Optimization—would develop my ability to solve the problems that most interest me. Its focus on setting its students up for career success is very appealing to me. As is UCLA's reputation for excellence.

I've always sought to challenge myself: The day before my fourteenth birthday, I started dual-enrollment classes at UTK. Five and a half years later, I'm looking for my next challenge. I've had a 4.0 GPA since I turned 18, excelled in graduate math classes, earned a spot on the Superball Challenge leaderboards, received funding for professor-mentored autism research, and helped to generate 6% alpha managing $300,000 of university-endowed funding.

I've also always done my best to give back to my communities. As the UTK Math Ambassador, I've worked to recruit prospects and to establish the department's social-media presence. Friends tell me that my enthusiasm helped seal the deal for them to become math majors. As a peer mentor and finance club executive, I've procured resources and advised peers, helping them to navigate college and get excellent jobs. During my recent summers, I have worked at the YMCA Camp I attended as a child to teach campers to become strong sailors and, hopefully, future sailing instructors. This summer, I plan to be part of the camp's leadership team.

I have done great work at UTK. I am proud to call myself a Volunteer. But in order to realize my professional aspirations, I need to demonstrate my abilities and leadership at the highest competitive level. Succeeding at UCLA's world-class MSBA program would allow me to do that. I am fully committed to my long-term goal, and UCLA's MSBA would be the natural next step.

4.10.2 BAS Personal Statement/Statement of Diversity

Please respond to one or more of the following prompts. Your statement can be up to 500 words in length (approximately 1-page, single spaced, using 1-inch margins and 12-point font). To be considered for a Cota-Robles or Graduate Opportunity fellowship, be sure to describe your contributions to diversity. The University of California Diversity Statement can be found online.

- Are there educational, personal, cultural, economic, or social experiences, not described in your Statement of Purpose, that have shaped your academic journey? If so, how? Have any of these experiences provided unique perspective(s) that you would contribute to your program, field or profession?
- Describe challenge(s) or barriers that you have faced in your pursuit of higher education. What motivated you to persist, and how did you overcome them? What is the evidence of your persistence, progress or success?
- How have your life experiences and educational background informed your understanding of the barriers facing groups that are underrepresented in higher education?
- How have you been actively engaged (e.g., through participation, employment, service, teaching or other activities) in programs or activities focused on increasing participation by groups that have been historically underrepresented in higher education?

- How do you intend to engage in scholarly discourse, research, teaching, creative efforts, and/or community engagement during your graduate program that have the potential to advance diversity and equal opportunity in higher education?
- How do you see yourself contributing to diversity in your profession after you earn your advanced degree at UCLA?

Growing up, I moved a lot. I've lived in New York, China, Taiwan, and Tennessee. I've lost count of the number of schools I've gone to. I've spent significant time at at least ten. I've always made terrific friends in each of these places, but I've also always been culturally different from my peers.

Skipping grades didn't help. I was already young in my original grade. By the time I was in seventh grade, I was taking math classes with kids four years my senior. Soon enough, I was keeping my age under wraps. It was passable, at least—I was lucky enough to be tall, big, and mature for my age. The first university friends I made during my dual enrollment ghosted me when they discovered I was fifteen when I got carded attempting to get into a rated R movie. I was somehow too mature for my age and too immature for my peers.

Now, I am a math and finance major at The University of Tennessee. My math friends joke that I'm a business person. My business friends say that I am a math person. My southern friends think I'm a Yankee. My northeastern friends think I'm a southerner. Everyone seems to want to classify me as some singular thing.

But I'm not. I am culturally an amalgamation of the northeast, south, and East. I am just as much a senior in college as anyone else, no matter my age. I am a math and business person. I will not apologize for my non-standard background; I will not apologize for pursuing my interests.

I've never fit in, and I'm grateful for it. I can make friends anywhere I go. I've had unique educational experiences and get to follow my own path. I no longer worry about what other people think of me. I keep an open mind and am receptive to change. I have an expanded, global perspective. I know what it feels like to be excluded and treated unfairly.

To that point, I want to be a trailblazer. I want to prove that it's alright to be different and help that minority be successful. Everyone is unique. I don't want anyone to be bullied for it, like I was. I want everyone to feel understood and included. Though I am far from the first person to acknowledge this problem, I hope that I can be one of the many to fix it. I've already worked hard in the pursuit of this goal. That's why I did autism classification research: improved classification accuracy can help ASD kids, especially high-functioning ASD kids, to be treated fairly. As a peer mentor, I've worked hard to make sure that first-year business students integrate well in an unfamiliar, diverse environment. Every success I have in my career will help me to both set an example for other "different" kids, but also give me a greater ability to create more inclusive systems that help them.

4.10.3 BAS Additional Essay 1

Essay 1: Business analytics requires a combination of mathematical/quantitative abilities and creative thinking. Describe a project you worked on, either as a student or professional,

that demonstrates your analytical and creative problem-solving skills. Tell us why this project was interesting to you. (Maximum 750 words)

Black swan event. 9:33 AM March 9, 2020. For the first time in more than a decade, the market-wide circuit breakers were thrown. 9:35 AM March 12, 2020. It happened again. 9:31 AM March 16, 2020. For the third time in a week and a half, market-wide trading was halted. The S&P 500 hadn't had a day go worse since October 19, 1987.

What a weird way to wake up. It was supposed to be my spring break. I was supposed to have road-tripped with my oldest friend, Teddy, to New Orleans. I had looked forward to couch surfing, eating well, and goofing off. Instead, I was sitting at home, reading articles, ideating, and refreshing the COVID-19 Map.

You see, I had a fiduciary responsibility. Just two months earlier, I had joined the student managed McClain Torch Fund and become responsible for helping to manage a $300,000 all-equity portfolio of university endowed funding, providing coverage for the technology and communication sectors and our holdings in them (InterActive Corp, Electronic Arts, Cisco, and Grand Canyon Education). When I first joined the fund, I had no idea what I was doing—I had little background and no practical expertise. I had been in the process of submerging myself in financial materials. All of a sudden, I had been tossed from the frying pan and into the fire. As the world was falling apart, my market understanding was coming together.

As lockdowns started, we sold out of our holdings that would have had difficulty maintaining their revenue streams (Disney, Five Below, and Johnson Outdoors) and needed to reallocate funds. What will recovery look like? How long will people be wearing masks and working from home? What will the post-pandemic world look like? These were the questions that were on everyone's mind as we looked for new opportunities.

I had an idea. Traditionally, IT spending drops during periods of uncertainty—companies normally are afraid to spend money on "non-essentials" if they might need the money later. I bet that companies couldn't afford the luxury of flexibility this time; with workers needing to have access to secure computing power from home, companies would have to accelerate the development of their cloud infrastructure. At the same time, in the world of entertainment, I expected a continued pivot towards gaming as tv shows and movies were struggling to film and games, as technology advanced, kept getting more compelling. The fund requires companies to be investment grade and have strong, positive revenue streams.

Microsoft fit well into my picture of the new world. What more could one ask for: it had stellar leadership, was a cloud market leader, and was a blue chip company. Interest rates were dropping, so it could raise money cheaply. As long as the world didn't end, there was little threat to its revenue streams. With all this information, its share price should have increased since its February highs. But its share price had dropped nearly 15%.

I spent countless hours researching. I listened to earnings calls, read reports and articles, analyzed financial statements, estimated growth rates, and created a model based on weak assumptions that claimed a 20% margin of safety. Once I felt I had synthesized all the pertinent information, I pitched Microsoft to the fund—I presented on March 30th with it trading at $160.23 per share. Soon after my presentation, we bought in. In the nine month since, we have had a return of nearly forty percent on our Microsoft investment. Maybe I was good. I know I was lucky.

What made this project, this proposal so interesting to me was that, for one of the first times in my life, the work I did had a meaningful and quantifiable impact. The work was intellectual, but not merely academic. Something real was on the line and I did all I could to ensure a positive outcome for our fund. And due to the success, future managers will have more resources which will afford them more opportunities.

Another reality that this work drove home was that many important real-world decisions must be made in a context of limited resources and time. I couldn't know for a fact what would happen. I didn't have access to Microsoft's internal financials and forecasts. I would have to decide for myself when I was satisfied enough with the information I had developed to go forward and make the proposal. And I recognized that executives must often find themselves in those same circumstances.

4.10.4 BAS Additional Essay 2

Essay 2: Why does a career in business analytics appeal to you? Based on your abilities and what you know about careers in business analytics, why do you think this is the right career path for you? (Maximum 750 words)

When I was six years old, I went to the park and sold most of my toys. My pricing scheme was ludicrous: every toy cost a nickel, except my 64-count crayon box which cost $13.99 ($3.99 new in stores). The majority of my depreciated assets quickly sold out, and I made 75 cents, a set of happy customers, a 100 percent net margin, and was left with a 64-count crayon box.

Since then, I've been interested in pricing and marketing strategies. Why hadn't my crayons sold? Why had everything else? How might I have increased my take-home? This interest has been encouraged by my entrepreneurial spirit. At summer camp, I was frequently found running massage parlors, trading Magic: the Gathering cards, and arbitraging across cabin food markets. By the age of fourteen, I had the camp dynamic figured out: in six weeks, I made $600, another set of happy customers, and an 85 percent net margin by taking advantage of the snack-supply limitations inherent to extended-stay sleepaway camps.

These were valuable and formative experiences, and I want to understand these concepts—pricing, markets, customers—on a larger scale.

Every successful product has a producer and a consumer. Maximum social surplus is achieved when the excess value of the consumer buying the good plus the profits obtained from the producer selling the good is maximized over the long term. To illustrate the concept of social surplus, consider Google's Ads Auction. Each potential advertiser on Google values an ad display differently, and the bids it places mirror that. Google stipulates that the winners of the ad spaces (the highest bidders, in order), will pay what the bidder below them bid. This pricing scheme—for non-obvious game-theoretic reasons—actually incentivizes participants to bid their true value, an outcome which would not—again for game-theoretic reasons—be achieved by a traditional auction. Using rules which incentivize "honest" bidding guarantees that the ad space will in fact go to the participant who values it most, and thereby guarantees the maximization of social surplus, while retaining as revenue an amount which would not even be available unless the "best" buyer was the winner.

But this leaves the question of how a company can determine its "true value" for the ad space. Answering this requires a theory-informed quantitative approach. In the world of Google ads this question is not so difficult: the percentage of ad appearances that are converted to "clicks" and the average revenue per click quickly reveal the "true value" of an ad placement. But calculating other similar-sounding "true value" problems may be much more difficult, and yet is becoming increasingly important as companies seek to optimize their value-proposition for their customers. Today's digital commerce generates a deluge of data of nearly every category that is just waiting for the opportunity to be effectively utilized in this context. Companies that don't have these analytic capabilities will quickly fall behind those that do. I envision myself on the cutting edge of strategic planning, delivering value and social surplus. To do that successfully in this day and age, I aspire to a career as a data-savvy, business analytics leader.

A business analytics career, as far as I understand it, consists of deducing valuable insights from the deluge of data available to them. The leader then uses those insights to create, optimize, and implement strategies for their employers and clients. One must be strong quantitatively, resourceful, and a powerful communicator. I've pursued my passion for quantitatively-based business through the academic disciplines of math, programming, and finance. My math and computer science classes—with courses like regression modeling, machine learning, data structures and algorithms, optimal control theory, probability and statistics, and data mining—have developed my quantitative ability. Proving mathematical concepts, creating investment strategies, and doing research in my Algebra, Analysis, Topology, investment fund, and quantitative research experiences are largely responsible for my outside-the-box thinking style. I have worked under my seniors, collaborated with my peers, and provided guidance to my juniors to provide value in the realms of extracurriculars, research, and fund management. Strong communication skills were an integral part in each of those roles. I have the breadth of foundational skills necessary to be successful in a budding business analytics career.

Business analytics is the right career path for me because I am an analytically-minded, creative businessman who has the background to and is excited about making the world a better place by utilizing data.

Chapter 5

Incomplete Applications

5.1 Baruch

Essays must be typed, double spaced and a maximum of three pages. Please address the following three questions: Why do you plan to pursue graduate studies in Financial Engineering? What motivates you to apply to the Baruch MFE program? What are your career goals upon graduation?

5.2 Berkeley

Please answer the following essay questions carefully and honestly (250 words maximum per question).

Please provide a statement regarding your experience, if any, in applying your quantitative skills to problem solving in business or research settings.

Please discuss why you have decided to apply to the MFE at this time and what career path you intend to pursue post MFE.

Choose one of your volunteer activities and discuss.

Supplemental Information: These questions address additional aspects of your application and should be answered as succinctly as possible (250 words maximum per question).

What do you view as a particular strength of yours? What do you view as a particular weakness? Would friends or family share your view?

Do you feel that your academic record is an accurate reflection of your ability and potential? In comparison to your college friends and classmates, do you feel that you were particularly advantaged or disadvantaged? Please explain.

5.3 USC

Describe your career aspirations. What roles, companies, industries, and regions do you see yourself working in and how do you see Marshall's MSBA program helping you achieve your goals? (250 words maximum). *

Give us an example of a skill that you have acquired through self-learning, and explain the process in which you taught yourself the skill? (250 words maximum) *

If there is something you would like us to know about you personally or professionally that hasn't already been mentioned, feel free to do so here. (Optional, 250 words maximum)

In the Business Analytics program, we have a diverse and collaborative environment both inside and outside of the classroom. We also place value on creating a community with

the entire Trojan Family. Please describe the contributions you expect to make during your time at USC. How will your colleagues benefit from your presence in the program? (One Minute Video)

