**Personal Statement**

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Shanghai is a city on the move. As my hometown becomes an important hub of digital commerce, it seems that more and more activities are being managed digitally. From paying for subway rides, to reserving restaurants, confirming medical appointments, and securing loans, everyday tasks are now being managed by popular mobile applications. As this revolution progresses, artificial intelligence will play a vital role. For AI to function effectively, it needs access to the massive caches of personal and real-time data; armed with this information, government and various commercial enterprises can improve urban infrastructure, mitigate traffic congestion, recommend new restaurants for people depending on their eating habits, and otherwise improve their lives in myriad ways. This is an exciting epoch-changing event, and I am eager to be a part of it.

I majored in Sustainable Urban Development because I believe passionately that cities play a vital role in creating the dynamic environment in which progress is made. But to fulfill this lofty aspiration, they must be livable, enjoyable, and even inspirational. To this end, I became keen to understand the big issues confronting cities in the 21st century: sustainability, pollution, and climate change. Importantly, these are both technical and ethical questions. For example, while automobiles were undoubtedly a technological advance over horse-and-buggies, the catastrophe of human-induced climate change has made the combustion engine an ethical dead end. Similarly, as we build and revitalize the cities of the future, we must account for an array of subjects from renewable energy to the effects of meat-based diets. With that being said, the core challenge of sustainable urban development isn’t simply telling people to lock their cars in the garage, consume pricey organic food, and become militant recyclers. Rather, we need to think bigger: how do we implement technologies and data-driven methods to optimize the urban system so that people can interact with the built environment more effectively.

During my sophomore year, I enrolled in “Geographic Information Systems.” The mapping software at the heart of this course is widely used in urban planning because it helps to create efficient regional and area visualizations for planners to grasp the condition of land use, demographics, housing prices, and governmental regulations. This course exposed me to the power of data to guide intelligent policy choices, which in turn enlarged my passion for, and interest in, data analysis and quantitative research. Armed with a deeper and more granular understanding of data visualization and modeling, I wanted to explore this topic in even greater depth.

My growing interest in the intersection of data modeling and urban development inspired my decision to investigate how the built environment in urban settings impacts the walkability of citizens for my senior capstone project. I wanted to understand whether the development of better-built environments would facilitate citizens’ willingness to walk. I spent a month collecting data in Shanghai. I had each of my classmates stand at an intersection and manually count pedestrians and bicyclists. We then used a database that transfers all the built environment characteristics (street width, condition of curb cut, number of restaurants, etc.) into vectors and dummy variables so that we could conduct the quantitative analysis and thereafter find a correlation between people’s willingness to walk (the number of pedestrians on a certain street) and the condition of the nearby built environment. In preparation for this project, I enrolled in courses on statistics and regression modeling as well as online curriculums on linear algebra, Python, and machine learning.

I quite enjoyed applying information I had acquired in class to real-world practical challenges, and this senior project enlarged my passion for data analytics and inspired me to continue learning. Thus, I fully dedicated my free time to learning those skills and I even sought out blogs and articles about machine learning, data science, and artificial intelligence. Everything I read piqued my interest further and inspired me to seek out new ideas and answer more questions related to these fields. I have come to believe that data science has the capacity to empower us to overcome most urban challenges and will inform decision-making far more effectively than qualitative studies that tend to dominate discussion of urban planning and management. In short, I want to uncover the scientific means by which we create better cities. This will be the focus of my graduate studies.

Driven by my desire to understand data science further, I took a position as a data analytics consultant at NYU Data Service Center during my senior year. Here, I mainly focusing on ArcGIS as a student consultant. During my internship, I was exposed to lots of other data analysis and visualization tools such as Tableau, SQL, and Stata, and I also developed a deeper and more thorough understanding of ArcGIS. In time, I progressed from mere understanding to real-world applications. For example, my knowledge of geographic information systems allowed me to solve real-world problems such as using network analysis to estimate how fast the local fire stations could assist households within different communities. The most important thing that I have learned during my internship is that data analytics is the first vital step in both data visualization and effective informed decision making. Using these means to understand problems gives us a vital advantage in our quest to make cities more livable, vibrant, dynamic, and healthy.