Academic Statement of Purpose

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Dear Admissions Committee / Graduate Program Director,

Seeing the Nvidia releases of super computers and advent of GPT 4, our world is being changed by AI, like how our forefathers’ lives got changed by the industrial revolution. We are making a transition into the “smart” world. I was fascinated by the computer vision and how machines perceive things by learning their numerical representations through various model architectures. I have learned and read state-of-the-art research papers and model architecture as well as experimenting myself for achieving higher accuracy by exploiting data augmentation and other state of the art techniques for robustness using custom data and some paper-with-codes dataset. The process gave me thrill and fun as sometimes a slight manipulation may output surprising results. Great works often require great minds. All the milestones in the industry all had such clever ideas of dealing with the existing problems, making me eager to explore the field more and solve some problems myself.

Everything has its own pattern, from NLP to reinforcement learning, and the beauty of machine learning is to explore the common patterns that exist in all the relevant individuals and can either recognize or come up with “decoys” that mimic the original examined sample (diffusion and GAN).

From an early age, I have been fascinated by the power of data and its potential to influence decision-making processes. It has always been a mystery how the game bosses and enemies could dodge my attack or sometimes even counterattack. This interest motivated me to pursue my undergraduate degree in Data Science and Machine Learning, where I was introduced to various concepts in statistics, programming, and data analysis. Through rigorous coursework and hands-on projects, I discovered the incredible potential of machine learning in transforming data into actionable insights. From converting images to 3d model to diffusing images through a given pattern, we can see what computer vision is capable of and what implications it may bring.

Over the past years, I have done many extracurricular activities and competitions just to 1. Reinforce what has been learned and apply it to real life and contest scenarios, 2. Get myself ready for deeper academic setting and industrial setting. My four years of undergraduate studies have equipped me with the necessary skillset to face the hard problems and I desire to deepen my knowledge into making me ready to solve the hard problems in real life. In my opinion, undergraduate education is merely the beginning, not the end. Just like how Resnet first dealt with the problem of vanishing gradient and exploding gradient in 2015 in deep learning and Diffusion outperforms GAN in image in 2020, I want to push the boundary of CV further beyond and help our lives become better by deploying the power of CV into practical field.

One example that can be used in a recent scenario is that the power of CV can be used to tell if an individual may have covid by examining the x-ray of their lung. During covid, everything was challenging and difficult. As a student who lived from the beginning of the pandemic to the end of it, whose grade was greatly impacted by having contracted covid and online learning, I would like to start a new journey in the academia without similar experience, fully unleashing the inner demon of young blood and enjoying campus life to the fullest. Also, I want to atone for the former “sin” of performing bad in the Spring of 2021 due to Covid, to show that I am better than what it appears for my GPA.

As a Purdue University new graduate, I am excited to learn from renowned faculty and researchers in the field of CV. The program's cutting-edge curriculum and interdisciplinary approach, combined with its emphasis on real-world problem-solving, will provide the ideal environment for me to thrive academically and professionally. Furthermore, I am eager to contribute to the community by actively engaging in collaborations to promote innovative solutions to pressing global challenges.

In conclusion, my passion for data science and machine learning drives my aspiration to excel in the graduate program. I am excited about the opportunity to not only expand my knowledge and skills but also to utilize them to make a positive impact on society. I am confident that the [Computer Science / Machine Learning] program is the perfect environment for me to achieve my academic and professional goals. I look forward to the possibility of joining the community and contributing to its continued success.

Sincerely,

Yingjun