Personal statement  
人们说，人类的智能的特殊性在于能学习使用工具。从小我就是个对物理世界和人类智能的交互非常敏感的人。相比于在教室里上课听那些教条的知识，我一直非常喜欢并擅长到外面去运动，包括足球篮球排球等几乎所有我接触的到的球类运动，以及滑雪滑冰这样与环境交互的运动。我常常对生活中能接触到的这些物理规律和动力学规律产生很敏感的相应，在运动中总是好奇，我或者说人类是如何学习到这些与复杂的物理世界交互的技能的。更是惊叹于为何出色的篮球运动员可以创造出新的运球组合来骗过防守者，足球的教练是如果设计出战术来戏弄防守队员的，这些在生活中博弈的问题中创造性的发现总是很吸引我。

很幸运的，在教育经历中我逐渐接近能解释、理解这些问题的知识和研究。My academic journey began from my 参与 in physics Olympics ,which 剧烈的 kindle my interests and 敏感性in 解决物理世界的问题，这使得我在刚刚进入peking大学时选择了物理方向，继续研究基本物理的普遍规律. 也在前两年积累了大量的对于基本物理原理的理解计算与应用建模能力，这为后面以及未来我从事的物理模拟和控制领域打下了很好的认知基础。   
而在大二时，因为图形学技术和人工智能技术的迅猛发展，我从网络=接触了很多非常炫酷且有应用价值的成果，也在线上的课程和讲座中初步从技术上理解了最前沿的计算机科学和人工智能是如何研究和处理物理世界的，包括在图形学的渲染、物理模拟、角色动画等方面，包括波士顿动力等直接影响显示的机器人技术。因此我认为未来的世界中发展更前言的计算机技术来处理物理世界的相关问题。从而我决定转专业进入到CS专业进行更系统的计算机知识学习。  
但改变往往是困难发生之时，我因为在转专业前没有选修很多的计算机课程，编程能力很弱。并且此前我在物理学研究有时只需要看书和自己做题，但计算机专业更要求团队协作能力，比如课程作业里如何能和队友一起构建一个小的QT应用，到实验室中如何和advisor以及同组的同学一起为新的idea构建成一个project并做出进展。那我就在这个过程中逐渐培养了自己的协作能力，也在这个过程中不断和更有经验的同伴学习，有了更好的自己构建代码构建项目架构的能力。而到了一两年后我成为那个更有经验的角色，我也可以在ML课程的project上去做一个小leader，从而去帮助组里对ai project的经验更少的同学一起来构建项目的运行流程和分工，这也是对我此前对困难的克服的一种鼓励吧。

那在真正的科研中，我想我对运动的着迷和执着一种推动着我致力于在embodied AI这方面做出自己的贡献。比如因为我自身健身，我一直尝试探究一种方法去从海量的数据和RL的方法中来学习分析肌肉的发力，去帮助人们更高效的健身。这也与我现在在做的pphysics-based character animation非常相关。我想从前的很有意义的工作往往不是坐在办公室里想idea，而是去从实践出发去解决一个真实需要被解决的问题，这样self-motivated的驱动才是研究的根本动力。  
  
而从多样性的角度，作为一个个体，即使我没有从宏观上改变groups that are underrepresented in higher education的处境的方式，但我的确有从身边能接触到的更多个体出发去帮助他们以至少平等的条件去争取他们自己的进步。因为从中学到大学我的班级的选拔一直是理科导向的，因此从小到大我一直是在一个很男女比很悬殊的环境里长大的。也因此我深深感觉到女生在一个性别失衡的群体中进行学校学习和教育的困难，因为这样的悬殊比例她们天生无法被平等的对待，也的确有些同学和老师会因为她们的性别去不同的判断她们的能力和对她们期盼。而很遗憾这种失衡的环境是我们CS这个领域在高等教育环境中的常态。但正如我说的，我的确可以从身边开始帮助一些我能接触到的人，我也确实在高中几位同样参加数学物理等竞赛的女生遇到困难、对是否继续产生迷茫的时候鼓励过她们，也在大学中一些初步接触编程而因为环境的性别有些内向需要帮助的低年级同学给过personal的技术上和心理上的帮助。当然我做这些的初衷可能只是voluntarily帮助我身边需要帮助的人，但这确实也是对在高等教育中，尤其是特定的领域中，例如女性或其他的代表性不足、容易被区别对待的群体的需要帮助的一点体现。  
或许值得一提的是我是从生理上和社会外表上都是一名男性，而我的内心是一个类似双性的认知，我并不放弃或厌恶我的男性存在，但我也有一些以女性存在的欲望，这或许也是我更能体会到女性的一部分原因。事实是我并没有在现实中将这一点表现出来，也没有在现实中因为这一点而遇到任何困难。但我们所在的领域里的确有非常多的人在现实中的确会成为非代表性的群体并且也可能会因此遇到困难，所以我不会停止在她们需要帮助的时候给出力所能及的帮助。实际未来在graduate program中，我可能担任TA这种会与更多的学生接触的角色，因此我也有责任也愿意去继续对她们的帮助和鼓励，去保证那些被认为代表性不足的群体的同学有着平等的机会。在这个初衷下，我们的多元性一定会被保证。

并且with a Bachelor’s degree in Computer Science, during which I developed a strong foundation in computational theory, programming, and algorithmic problem-solving，以及最新的人工智能领域。而后我在AI引论这门课上更是全面的了解了这些如CNN等有含义的网络结构，以及生成模型，以及学到强化学习这种非常自然的想法，深深符合我对人类发展的认知的算法，以及其在机器人等领域的应用。同一学期的我选修了Professor Libin Liu的角色动画与物理仿真课程，深入的探索了both kinematics character animation 和 physics-based character animation的前沿算法和进展，也自己实现了motion matching等一些较为前沿的领域内的经典算法，得到了老师的肯定，拿到了95的高分. This experience sparked my curiosity about the character animation 以及 physics-based control和相关的humanoid robotics和RL领域的广泛兴趣

They say that what makes human intelligence special is the ability to learn to use tools. Growing up I was a person who was very sensitive to the interaction between the physical world and human intelligence. Instead of being in a classroom and listening to dogma, I have always loved and excelled at playing sports outside, including soccer, basketball, volleyball, and almost any other ball game I've been exposed to, as well as skiing and skating, where I interact with the environment. I am often sensitive to the laws of physics and dynamics that I have access to in my life, and always wondered in sports how I, or rather human beings, learned these skills of interacting with the complexities of the physical world. More so, I marveled at why great basketball players could create new dribbling combinations to fool defenders, and how coaches in soccer devised plays to tease defenders, and these creative discoveries in gaming the problems of life always fascinated me.

Fortunately, during my educational experience I gradually approached knowledge and research that could explain and understand these problems.My academic journey began from my involvement in physics Olympics ,which dramatically kindle my interests and sensitivityin solving problems in the physics world, which led me to choose a university in I chose to study physics when I first entered peking university to continue my research on the universal laws of fundamental physics. In the first two years, I have accumulated a lot of computational and applied modeling skills to understand the basic physical principles, which has laid a good foundation for my future career in physics simulation and control.

And in my sophomore year, because of the rapid development of graphics technology and artificial intelligence technology, I was exposed to a lot of very cool and valuable application results from the Internet =, but also online courses and lectures on the initial technical understanding of how the most cutting-edge computer science and artificial intelligence to study and deal with the physical world, including in the rendering of graphics, physics simulation, character animation, etc., including Boston Dynamics and other Robotics that directly affects the display. Thus I see a future world in which more preverbal computer technologies are developed to deal with problems related to the physical world. Thus, I decided to change my major and enter the CS program for more systematic computer knowledge.

But change is often difficult when it happens, and I had weak programming skills because I had not taken many computer courses before changing my major. And while my previous studies in physics sometimes required me to read books and do problems on my own, the computer science major requires more teamwork skills, such as how to build a small QT application with teammates in coursework, and how to build a project for a new idea and make progress in the lab with the advisor and fellow students. Then I gradually developed my collaborative skills in the process, and in the process I continued to learn from more experienced peers, and got better at building code and architecting projects on my own. After a year or two I became more experienced, I was able to be a leader in the ML course project, and helped the less experienced students in the group to build the project's operation process and division of labor, which was also a kind of encouragement for me to overcome the difficulties before.

In terms of real research, I think my fascination and dedication to sports has pushed me to make my own contribution to embodied AI. For example, because of my own fitness, I've been trying to explore a way to learn to analyze muscle force from massive amounts of data and RL methods to help people work out more efficiently. This is also very relevant to the physics-based character animation I'm doing now. I think once upon a time meaningful work was not about sitting in an office and thinking of ideas, but rather about solving a real problem that needed to be solved from a practical point of view, so that the self-motivated drive is the fundamental motivation for research.