# Statement of Purpose

*Michael Thompson*

*PhD Application in Computer Science*

I am writing to apply for the PhD program in Computer Science at [University Name]. I am interested in pursuing research in artificial intelligence and machine learning, particularly in the areas of computer vision and deep learning. Through my master's program at State University, I have developed a strong interest in these fields and believe that a PhD will help me achieve my goal of becoming a researcher and contributing to advances in AI technology.

My interest in computer science began during my undergraduate studies at Regional State College. I took courses in programming, data structures, and algorithms, which gave me a solid foundation in computer science fundamentals. During my senior year, I completed a project where I built a web application for managing student courses. This experience taught me about full-stack development and sparked my curiosity about how technology can solve practical problems. After graduation, I decided to pursue a master's degree to learn more about advanced topics in computer science, especially machine learning.

In my master's program at State University, I have been exposed to various areas of machine learning through coursework and research. I took classes in machine learning fundamentals, algorithms, and database systems, which helped me understand the theoretical foundations of AI. For my thesis, I am working on improving classification accuracy in neural networks for image recognition. This project involves experimenting with different network architectures and training techniques to see which approaches work best on standard datasets like CIFAR-10 and ImageNet. Although I am still in the early stages of this work, I have learned a lot about how neural networks function and the challenges involved in training deep learning models.

Since January 2024, I have been working as a graduate research assistant in the Computer Vision Lab at State University. In this role, I assist with data collection and preprocessing for various image classification projects. I also run experiments with existing deep learning models and help with literature reviews. Working in the lab has given me valuable exposure to the research process, including how to design experiments, analyze results, and present findings. I have also had the

opportunity to attend weekly lab meetings where I learn about the research being conducted by other lab members and stay updated on recent developments in computer vision.

During my undergraduate years, I gained practical experience through internships and part-time work. I worked as a software engineering intern at TechStart Solutions, a small startup, where I developed features for a web application and learned about agile development practices. I also worked as an IT support assistant at my college, helping students and faculty troubleshoot technical issues. These experiences taught me important skills like problem-solving, teamwork, and communication, which I believe will be valuable in a research environment.

I have also been involved in academic activities outside of coursework and research. I am a member of the ACM student chapter and have participated in a regional hackathon. I also volunteered at an Hour of Code event for a local middle school, where I helped introduce young students to programming. These experiences have reinforced my passion for computer science and my desire to contribute to the field through research and education.

I am applying to [University Name] because of its strong reputation in artificial intelligence and machine learning research. I am particularly interested in working with [Professor Name], whose research on [specific area] aligns with my interests in computer vision and deep learning. I believe that [Professor Name]'s lab would provide an excellent environment for me to develop my research skills and contribute to meaningful projects. I am also attracted to [University Name] because of its collaborative research culture and the opportunity to work with faculty and students from diverse backgrounds.

I understand that pursuing a PhD is a significant commitment and requires dedication, hard work, and perseverance. While I recognize that I still have much to learn, I am eager to develop my skills as a researcher and contribute to the advancement of knowledge in artificial intelligence. I am particularly interested in exploring how machine learning can be applied to solve real-world problems, such as improving image recognition systems or developing more efficient algorithms for processing visual data.

In the long term, I hope to pursue a career in research, either in academia or industry, where I can continue to work on challenging problems in AI and mentor the next generation of computer scientists. I believe that the PhD program at [University Name] will provide me with the training, resources, and mentorship I need to achieve these goals. I am excited about the possibility of joining your research community and contributing to the innovative work being done in your department.

Thank you for considering my application. I look forward to the opportunity to discuss my research interests and goals with you further. I am confident that with proper guidance and support, I can develop into a productive researcher and make meaningful contributions to the field of computer science.