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Statement of Purpose

From an early age I have always been fascinated by computers. It was my brother who introduced me to the world of computing and I can still remember the feeling of wanting to just how computers worked, why they worked and what else they could do. It seemed only logical that I pursue a career in computer science. During my undergraduate and graduate career, I had the opportunity to be exposed to the full range of computer science courses, all of which tended to reinforce and solidify my intense interest in computing. Since I got my B.S. and M.S. in computer science I have obtained so much practical experience and working skills as a software engineer. I am deeply engaged in computing areas such as Web Services, Grid Computing, and Cloud Computing. The more projects I was involved in, the longer I worked as a software engineer, the more responsibility I have in the project teams, the more eager I feel I need to go back to academic institute for advanced study to update my knowledge and to build a stronger and broader foundation for my further career. I am also very interested in research in computing to develop new ideas to solve challenging problems. One of my ultimate goals is to pursue my PhD degree. I wish to be a scientist and researcher in the computing area in the future.

In 2008, I was accepted by Computing and Information Sciences PhD program in Rochester Institute of Technology. My research focuses on Grid Computing, Cloud Computing and Green Computing. My advisor, Dr. Laszewski, is an expert in the area of Grid Computing. He worked as a scientist between 1996 and 2007 in Argonne National Laboratory before he came to RIT. Under the guidance of Dr. Laszewski, I have achieved a better understanding of what constitutes the good research and how to conduct such research. One of our research efforts is to develop specialized tools and services to ease the use of advanced Cyberinfrastructure. *Grid Shell*, for example, is an easy-to-use system shell we developed to facilitate the deploy and execution of large scale scientific application. Besides, our research effort includes developing new algorithm and adopting new methods to increase the energy efficiency in modern data centers.

I believe Cloud Computing will play an extremely important role in the future world of computing since it has the potential to transform a large part of the IT industry, making software even more attractive as a service and shaping the way IT hardware is designed and purchased. Currently, quite a few obstacles urgently needed to be addressed in order to advance the development of Cloud Computing. For example, many applications benefit from high performance computing (HPC) which is mostly achieved in large clusters using message-passing interface (MPI). The obstacle confronted by Cloud Computing is that many HPC application need to ensure that all the threads of a program are running simultaneously, but today's virtual machines and operating systems do not provide a programmer-vision way to ensure this. Other obstacles in Cloud Computing include service availability, data confidentiality and so on. These obstacles, on the other hand, provide the opportunity for researchers to contribute to academic community and make Cloud Computing related research promising and far-reaching.

I am happy to have learned that your college offers an excellent program in advanced computing theories and technologies and that will provide good opportunities for the full development of individual capacity and originality. I think it is one of the best places for me to undertake my PhD studies. I believe I will be successful in my computing professional career with my hard working and studying in your college.