Statement of Purpose

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When I think about the different realms of science and technology, it is hard to think of a domain that is going to change the world as much as advanced software will, in the decades ahead.

If Ray Kurzweil is right in his book "Singularity is Near", we are near the end of 'Epoch 4' (Technology) and entering into 'Epoch 5' (The Merger of Human Technology with Human Intelligence). In the distant future, as Ray points out in his book - advanced technology will enable us to have an artificial heart, knees, and almost any other part of the human body. Paralysis due to spinal injuries could be overcome by using specialized electronics that would allow paraplegics to regain control over their muscles.

While Ray's ideas are interesting and exciting to think about, in the near future I foresee computer science being used as a tool, as mathematics is used, for all the fields of science. It has always been important for physicists, chemists and biologists to have some understanding of specific areas of mathematics to express their ideas, to write down formulas, and to make predictions. Similarly, in the near future, computer software will become an integral part of the research to create new breakthroughs. For instance, all fields of science collect and analyze a large amount of data. Finding patterns in large amounts of data has always been a stumbling block. However, by using state of the art software for data mining and machine learning, hidden trends and patterns may emerge that can help increase understanding and solve problems. Similarly, with the vast amounts of data in genomics, we can use various data mining techniques to find patterns that advance our understanding of how the human body functions, including understanding some of the brain's intricacies. These patterns could also help with disease diagnosis and possible cures.

I feel excited about what Ray describes as 'Epoch 5' where the focus shifts toward merging technology with human intelligence to create an age of Artificial Intelligence. I want to contribute to that age of evolution. Thus, a *M.S. degree in Computer Science* (with emphasis on Artificial Intelligence) is the logical culmination of my passion for Artificial Intelligence and Computer Science in general.

I earned my undergraduate degree in Computer Science [Elective - Artificial Intelligence] at the University of Pune with the grade *'First Class with Distinction'*. Also, I was the topper of the undergraduate program at my school. Prior to my undergraduate degree, I have been the topper in Mathematics and Computer Science at my high school.

In 2007, I received the *'Best Student'* award for the highest achievement in academics and for my contributions to the school.

During my first year in the undergraduate program, I co-founded the Association of Computer Engineering Students (ACE) at my college, and I headed the organization during my junior and senior years in the positions of The General Secretary. Also in my senior year, I was the President of 'Digital Renaissance', the technical festival organized by the CS department. It holds the record for highest number of participants and sponsors in the history of the college.

Over the course of my undergraduate program, I participated in various programming contests and won many of them. I always enjoyed the practical aspects of my studies, and that is one of the reasons why my marks in lab exercises, term work, oral examinations, practical examinations, and projects averaged above 85%, the highest in my school. I also developed various small software tools for my school, such as a web-based system to conduct online examinations, an online course repository, and a small lightweight console for remote manageability of desktops.

During the final year of my undergraduate degree, I received an internship opportunity at BMC Software, to work on their Marimba products, the product written by the creators of the Java language (Arthur van Hoff, Jonathan Payne, and Sami Shaio). At the end of my internship, I was offered to join the Marimba core R&D team.

While working on Marimba, I learned various aspects of building large and scalable systems, protocols and algorithms for efficient and secure content distribution over network, and managing a heterogeneous infrastructure. I was also actively involved in the research and design of a self- enabling infrastructure for Intel AMT Agent Presence, an efficient data structure for sending large statistics reports over WAN, and better management of OS runtime processes. I have written white-papers and technical documents which have been incorporated into the products. At BMC, I developed many of the key Marimba features such as 'Marimba's support to Windows Server 2008 and Windows 7', 'Marimba's package deployment support to x64 architecture (native x64 packaging support)', 'CRS(Common Reboot Service) framework', 'Policy based power management', 'Intel AMT support'; 'Marimba AMT Java SDK for Channel developers', 'Session migration of marimba client to better manage installation of user application when migrating from session 0', 'Certificate management' and 'Code signing module of Marimba (rewrote in order to move from using phaos library to RSA library)'. I also played a major role in porting Marimba Client from Java Runtime 1.4 to Java Runtime 1.6 on Windows, Linux, Solaris, HP-UX and AIX.

Throughout my stay at BMC, I had the opportunity to mentor many undergraduate and graduate interns. I mentored a few academic projects, mostly in collaboration with the CS department at my undergraduate school. I also delivered many guest lectures.

A few months ago, I founded a company, Cathysoft, with the idea of writing a clinically useful program to overcome the limitations of conventional computer-aided diagnosis. However, after doing some initial research on simulation of human reasoning based on patient data for diagnosing diseases – I realized that I need to gain more experience and exposure to an excellent research environment. Thus I decided to pursue a masters degree.

I want to make sure that the company I am building is around for a long term and with this goal in mind I decided to study further in an institute that help me further my goals. I am looking for a school that has the world-class study and research atmosphere, the best faculty, exceptional peers, and excellent infrastructure, an institute that can facilitate resources to help attain my ambitions.

Stanford University has the unique distinction of being at the forefront of innovation and producing entrepreneurs. The university is the birthplace for the companies like Google, Yahoo, Sun Microsystems, HP, Cisco, Intel, VMWare, Electronic Arts, and many more..., and is known in the world as 'The Place for Startups'. Thus, Stanford University is my choice for the graduate studies. I am very optimistic about the future of my start-up, by being there. At Stanford, I hope to get an opportunity to meet the top management of some international high-tech start-ups and gain hands-on experience in starting and running a new enterprise. It would help me understand the issues and policies that affect the climate for innovation and start-up success around the world.