Statement of Purpose

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For me, it all began with curiosity. I remember peeking at electronic devices and trying to make sense of all the connections using my limited physics knowledge and my intrinsic talent. When I was accepted by the National Organization of Developing Exceptional Talents (NODET) to enter Shahid Ejei high school, I used to attend programming classes where I showed great enthusiasm for solving problems through logical thinking. I believe that my passion for computer science field came from there. This pure passion along with my success in National University Entrance Exam (Top 1%) encouraged me to choose Software Engineering as my major at the Isfahan University of Technology, one of the most prestigious universities in Iran.

During the first few semesters of B.Sc., I was highly captivated by the world of algorithms. I eagerly tried to solve problems of coding websites like "Codeforces.com". Likewise, to challenge my programming skill, I participated in the ACM-ICPC verification contest held at our university in 2013. Our team achieved the first place, so we were eligible to partake in 15th ACM-ICPC Asian Tehran Regional Contest in Iran. Due to my enthusiasm for algorithm and computation, I have been always seeking to extend my knowledge in this filed. However, I could not justify the human brain's functionality, as a phenomenal source of biological computation, by my insufficient knowledge. For this reason, I tried to initiate learning more about artificial intelligence by taking the "Artificial Intelligence" course with Dr. Mirzaei. This course introduced me to a whole new world in the fields of machine learning and computer vision. The importance and challenging nature of these topics motivated me later to carry out further research on it. Accordingly, as my B.Sc. thesis, I worked on implementing a real-time face recognition algorithm for Android devices under the supervision of Dr. Mirzaei. Specifically, I devised a fast distance computing function for high dimensional spaces, which successfully accelerated the face recognition process. Indeed, accomplishing this project gave me valuable insights into basic machine learning and computer vision algorithms.

Since I was so eager to get hands-on experience, in the last semester of B.Sc., I attended a summer internship at the Isfahan University of Medical Science. The objective of the internship project was to design a software and device which together aid dentistry students in evaluating crown preparation. My task in the project was to design a software which computes the expected crown preparation criteria using image processing techniques. My collaborators also undertook to construct a particular device with the help of which students can take accurate pictures from appropriate angles. Our collaboration resulted in a patented product and a paper submitted to the European Journal of Dental Education. Carrying out this research allowed me to deal with the more practical challenges of computer vision. Moreover, it taught me how to work cooperatively as a part of the team and in the meantime function well individually.

My immense interest in machine learning and computer vision was the main incentive for me to pursue my graduate program in the Artificial Intelligence field. After studying hard for computer science National

Master Entrance Exam, my endeavor paid off. I became 29th among more than 15000 competitors in the exam. I was accepted in Computer Engineering M.Sc. program, Artificial Intelligence field at the University of Tehran, the best university in Iran. The beginning of My M.Sc. coincided with the era of the popularity of deep generative networks. Under this circumstance, I was greatly absorbed by the superb results of deep generative models and training frameworks such as Generative Adversarial Network. Given my background, I reckoned that researching on applying deep generative models to solve a computer vision problem would be promising. For this reason, I decided to work under the supervision of Dr. Hosseini who is a well-known professor for working in this field. A number of meetings with him inspired me to investigate more about the image restoration problem. Consequently, I came up with an idea to develop an unsupervised method for image restoration using deep generative models. In particular, I changed the training procedure of variational auto-encoder network to become an image enhancer. Despite these works, I achieved a GPA of 18.85 out of 20, becoming the second-best student in my class. My excellent performance in graduate courses helps me score a part-time job as a teacher assistant in courses including "Computer Vision", "Bio-inspired Computing", "Pattern Recognition", and "Data Analytics" at the University of Tehran. After my M.Sc. graduation, I have been taking part in research projects under the supervision of Dr. Sadeghi. In these projects, we have been researching on modeling long-range sequences using transformer architectures. Currently, we are looking forward to presenting the findings of the projects in a top upcoming conference.

My inclination has always been toward applying my expertise and knowledge to a real-world problem. Because of my practical experience in medical imaging and machine learning, I think I can contribute more to this area. So, It would be a great opportunity for me to collaborate with the AIM lab at the University of Amsterdam. Reading six projects' descriptions, the projects A and D seem to be perfectly aligned with my background (my M.Sc. thesis was also on image enhancement). Besides, I believe that I am capable of being engaged in other projects with a little study.

I am aware that admission to the program is highly competitive. Nevertheless, I am confident that my passion to work along with my skills, knowledge, and competence make me a great fit for your program. I would appreciate an opportunity to discuss my application in more detail at interview. I look forward to hearing from you.

Sincerely yours,
Hamed Haghighi