Statement of Purpose

Since I am born in a family wherein both my father and mother have PhD, I have had singular paradigms in my life. As I was growing up, the sight of admirations towards my parents and the unique social prestige of scientists in my community convinced me to pursue my academic studies to achieve my goal, becoming a distinguished professor. I look forward to undertake cutting-edge projects with elite students, commit to them, and help them grow as an engineer.

Under any circumstances, I have always been among the top students in my school and was the leader of our RoboCup team in high school. In addition, I was ranked 443^{th} in the nationwide university entrance examination (which had over 350,000 participants) and as a recognition of that I was granted full scholarship to study in the University of Tehran (the oldest and most prestigious university in Iran) for undergraduate program. Now and after six semesters of hard work, I am ranked 6^{th} among 116 students in the School of Mechanical Engineering and in admiration of this remarkable achievement the admissions committee has offered me a full scholarship to continue my graduate program in the University of Tehran. I believe these impressive successes followed by deep respects show how much effort I have put to achieve my goal.

During my undergraduate program, I have taken various courses. However, the ones, which carried me away the most, dealt with heat transfer and fluid mechanics. Passing "Computer Programming" course in the university and my background of leadership in our RoboCup team in high school engaged me with the world of algorithms. After taking myriad courses during my bachelorette degree, I realized how practical and essential the knowledge of optimization and computational methods is for any student, who pursues new things in heat transfer or fluid mechanics. Taking "Optimization of Thermal Systems" course during last semester helped me to perceive the concept of optimization with known programming languages (C, C++, and MATLAB®). My profound interest in heat transfer and the materials I learnt in the optimization course convinced me to work in the Heat Transfer Laboratory and start my bachelorette project on a new shape of pipe, which enhances the process of heat transfer in heat exchangers. The effectiveness of this project is simply justified with the ongoing rise in the energy prices. My duty in research group is to verify the experimental results by modeling this pipe in computer using computational methods and optimizing the pipe's shape. I look forward to submit a paper on this issue by early February. I also plan to take "Computational Fluid Dynamics" course in the next semester that will definitely improve my programming skills in fluid mechanics and heat transfer. I believe being among the top students of the course mentioned above and my bachelorette project clearly demonstrate my passion and knack for this particular field of study.

During my formal education, I have strived to be an active member in the group projects and as a clear sign of that, I have gained A^{+} for excellent leadership and teamwork in all undertaken group projects not only in the university but also in high school. Last semester my friends and I completed five projects in various courses, including the "Optimization of Thermal Systems",

"Gas Turbine and Jet Propulsion", and "Automatic Control". We carried out three optimization projects in which we had to draw on our own knowledge and experience to solve open-ended problems. In two of them, which took us two months to finish, there were times that we had to work without much guidance, since the projects were about inverse heat transfer which is taught as a separate course in graduate programs. Finally, our work was selected as the best project and we gained the top score. In addition, due to my superb academic performance I have been honored to become the teacher assistant in "Dynamics" and "Thermodynamics I" courses while in the University of Tehran commonly graduate students are considered and qualified for this task. Furthermore, I was selected to train the new graduate teaching assistants of the heat transfer laboratory in order to teach them how to use experiment probs. I believe that these experiences have prepared me to deal with difficult and unprecedented situations.

When I became a sophomore, I considered studying abroad more seriously and started to gather some information about well-known universities in the world. I liked a number of universities but on top of them was University of Toronto. During my bachelorette project, I have made numerical simulations for convective heat transfer of turbulent and laminar flows in pipes with different shapes and learned a lot about turbulence models and convective heat transfer. Thus, I would like to focus on this area. If admitted, I pledge to continue my hard work and grasp even the slightest opportunities at the University of Toronto.