My inspiration for pursuing a career in environmental science is my father, a chemical engineer in the forestry industry. When I was in elementary school he took me on many outings to the Taiwanese countryside, where we observed wildlife and discussed the wonders of nature, such as why the sky was blue and how flora and fauna functioned in tandem as integral parts of an ecosystem. In 2001 he took the family to the beach at 1 a.m. to watch the Leonid 2001 meteor shower, and the sense of awe I felt lying on the sand and watching the meteors shower down upon me is one of my most vivid memories. My appreciation of the physica] world and the laws which governed it was thus nurtured, and I chose to study applied sciences. I became immediately fascinated with the energy and materials aspects of sustainability when I first encountered the term 'energy and technology] in a first year Engineering Materials course (ASPC 150). This fascination led me to major in Materials Engineering and has combined with my aptitude and passion for research in motivating me to earn an MA in Environmental Sciences and Engineering at Harvard University.

Experience as a research assistant compliments my outstanding undergraduate academic performance (GPA of 3.8) in qualifying me as a candidate for the program. This past summer I worked as an intern in the R&D Department of Yeun Foong Yupaper Mfg. Co. (YFY), a pulp and paper manufacturing company in Taiwan. Identifying materials and surface properties in order to distinguish between satisfactory and defective products allowed me to build upon my knowledge of Metallurgy Spreadsheet mass balance as I gained familiarity with the process control of paper manufacturing practices). In the process I have been able to see how see how the principles of chemical engineering translate into real industry operations and to collaborate with a private-sector research team in a dynamic scientific environment.

From February to June of this year I worked as a research volunteer with the Ceramics Group of UBC, under the direct supervision of Master of Applied Science candidate Yu Chen (Ray) Yao, a Master of Applied Science candidate, and Professor Tom Troczynski. The project I was most actively involved in was related to Yao's thesis research regarding the application of Chemically Bonded Composite Sol-Gel to Carbon Carbon Composite. In carrying out laboratory procedures and recording observations I demonstrated an understanding of the theories governing each procedure and on occasion, had to solve problems independently. For example, in the dip deposition, the CCC sample had to be dipped into alumina sol-gel at different dipping rates, but the machinery used for dipping is only designed for dipping in a constant rate and does not explicitly display the dipping rate. I solved this problem by utilizing the simple laws of physics velocity=distance/time and preparing my own apparatus (including a timer, a ruler, and a thin rope) to secure the constant descent of the dipping specimen; the results enabled the dipping rate to be quantitatively measured. This project has bolstered my confidence in my ability to integrate new information quickly and devise innovative approaches as a researcher. Further, the project has given me an opportunity to earn a publishing credit, as I am currently co-authoring the paper on the research with Ray Yao.

My research experience has reinforced my conviction that Environmental Sciences and Engineering is the ideal career path for me. My long-term goal is to contribute to the advancement of materials and devices which support environmental sustainability, such as electrochemical fuel cells, optoelectronics and photovoltaic devices (i.e. the solar cell]. Towards this end, I intend to specialize in one aspect of green technology research as a graduate student at Harvard. As the properties of optoelectronic silicon are of particular interest to me, I would like to assist Dr. Michael J. Aziz on his optoelectronic (Flat) Black Silicon project, which involves investigating the yet unidentified mechanisms and properties by which this promising photovoltaic agent absorbs wavelengths in the sub-bandgap region. It would be exciting to play a small part in this ground-breaking domain of research and I would welcome the challenges it entails.

In closing, I wish to emphasize that I have a strong academic background in the principles and applications of green technologies, including includes a foundation in transport phenomenon; the phase transformation of materials; polymers and ceramics and their respective behaviours; engineering design; and technical communication abilities. This foundation supports my proposed course of research, while my track record of academic performance indicates my ability to thrive in post-graduate studies. Harvard is my first choice among Environmental Sciences and Engineering Programs because it is an international leader in environmental education and research with a commitment to seeking solutions to pressing environmental issues addressing pressing environmental problems. The opportunity to attend the program is not one I will take lightly and I have put careful consideration and forethought into assessing that I have the discipline, skills, and clarity of purpose to successfully meet or exceed its demands.