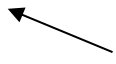


Dear Recruitment Committee, **Some candidates address their statement as a letter to the committee, although this is not required.**

A recent essay by Charles Fairhurst, one of the fathers of rock mechanics, drew my attention. The essay, entitled “*Thinking Deeper*”, made an extensive review of Earth Resources Engineering and global challenges. Current projections state that Earth’s population is expected to rise at a rapid rate over the next decades, resulting in a population of 9.6 billion people by the year 2050, and nearly 11 billion by the year 2100. Alongside this, the increase in average standard of living will result in a greater consumption of energy and planetary resources. As civil engineers we should play a leading role to the preparation of our planet for such population growth so that it can be achieved in an economically and environmentally sustainable manner.

**Hook: a brief review of an essay that draws the candidate’s attention, which relates the statement directly to the research interest from the beginning.**



Civil engineering strives daily to improve the conditions under which we live. The construction of roads, railways, ports, dams and other types of civil infrastructures allow the structuring, and enable territories economical and social activity. Besides, it plays a major role in the development of technologies needed for energy production and the mitigation of both human and naturally occurring disasters/phenomena such as earthquakes or environmental degradation connected to soil pollution or minerals extraction, which remain the foundation of national economies. The associated environmental aspects of all these activities are totally integrated within civil engineering projects nowadays. That benefits the ecosystem, but also the human being as a component thereof.

After eight years of studying Civil Engineering and Environmental Sciences I would like to pursue a researcher career in the fields of Geotechnical and Geoenvironmental Engineering. My name is John Doe and I intend to undertake doctorate studies at Massachusetts Institute of Technology. Throughout my studies, I have developed a deep interest in geotechnical and geoenvironmental engineering with energy applications. I completed my undergraduate studies in Civil and Environmental Engineering in 2016, graduating from University of The City as the valedictorian of my class. As an undergraduate, I was involved in a research project on the effect of clay’s swelling on foundations at regions with groundwater table oscillations. This work was highly influenced by my experience as an exchange student at the University of the State. There I had the fortune of studying under the supervision of Prof. M. L. whose courses in physics of flow and geotechnical design have greatly contributed to reinforce and broaden my knowledge in geotechnical and geoenvironmental engineering.

Attending to the University of the State during my senior year was a pleasure, most rewarding and highly educational. Not surprisingly, I came back to the United States to do my MS in Civil and Environmental Engineering at the same institution working under the supervision of Prof. M. L. again. Among the potential topics I was presented, energy geotechnics strongly caught my attention. Not only because of the relevance of the area, but also for the potential contributions that can be made producing significant economic and environmental impacts to our society. Thereby I became interested in geo-energy systems. My current research focuses on CO<sub>2</sub> sequestration in rock formations. We are currently conducting laboratory experiments on sandstone samples. Our goal is to investigate the change in the rock’s

properties (permeability, strength, etc.) due to this process. My interests also include numerical modeling of this process to better understand the physics and correlate it with experiments. My interdisciplinary studies have provided me with a solid background in both civil engineering and environmental sciences. I have had the opportunity to study many of the fields of civil engineering such as hydraulics and hydrology, structures, coastal and maritime engineering, geotechnics, water resources, and environmental engineering.

**Previous Experience + Match: in these two paragraphs, the candidate complements the information presented in the resume about previous academic experience, explaining in more detail the programs and research projects the candidate was involved as undergrad and grad student, and how these influenced on the candidate's research interest. Strengths and achievements are highlighted.**

I firmly believe that attending your prestigious Doctorate's Program would allow me to acquire top-notch knowledge and to work with faculty leader in their respective fields, which would definitely boost my career on energy geotechnics. For instance, Prof. C. D. is working on flow through fractures in rock formations, which is a key aspect in carbon sequestration. Given my interdisciplinary background and laboratory expertise, I think I would be able to contribute to his work. That expertise on fluid dynamics and rock mechanics that I have would also benefit Prof. C. D.'s work on constitutive modeling. I find very interesting the possibility of applying my previous experience on experimental work on sandstone samples into the research Prof. C. D. is conducting on hydraulic fracturing of granite for geothermal energy applications, and also to get more expertise on numerical models of flow through fractures.

**Research interest: after explaining the background, it is clearly stated which faculty member the candidate would like to work with, and how the candidate's previous experience match with this Professor. The paragraph mentions concrete examples of projects the candidate is interested in and would like to be part of.**

Joining your department and working jointly with faculty members like Prof. C. D., will contribute in my career goal of becoming a R&D leader in the energy sector. My aim is to get involved in the development of more efficient and cleaner energy systems, taking advantage of resources that are still way underexploited, like geothermal energy. Moreover, I would also like to be part of some of the initiatives that the department holds in this area, like the Clean Energy Hackathon. This is the way how I intend to address the challenges mentioned by Charles Fairhurst at the beginning.

**Career goals, Leadership and Diversity: before ending the statement, it is stated the candidate's long-term career goals, linking them directly with the program that is being applied to. The candidate also shows interest in getting involved with the department community.**

I am aware that admission to your Civil and Environmental Engineering Doctorate's Program is competitive, but I am qualified and fully prepared to meet all the challenges that doctorate studies may present.

Sincerely,