Dear Committee Members,

I am writing to apply for the lecturer position in Power Electronics/Electrical Machines in School of Engineering. I am currently a research associate in the Institute for Energy Systems in the School of Engineering at Edinburgh.

My research is focussed on developing electrical generators specifically for renewable energy applications. Since …based on this research I have published 6 journal papers, Xxx conference papers (2 of which won best poster award), and have filed one patent. My research has been recognised through invited presentations at the Royal Society of Physics and UK Magnetics Society, as well as invited contributions to two books published by … and the IET. In addition to undertaking fundamental research I have been involved in knowledge exchange through industrial consultancy projects. My work on HTS technology has strengthened the links between Edinburgh and GE Energy and Power Conversion, leading to the transfer of an HTS lab to Edinburgh.

I believe that my academic training and my five years of experience working as a research associate within IES and six years of experience as a teaching assistant prepare me to be an effective researcher and lecturer in School of Engineering.

I’ve started working in the IES in 2009. During my first contract period, I have developed novel electrical generator designs for four of the most prominent tidal and wave energy companies in UK. The project has been completed with very positive feedback from the companies. Following the project, I’ve worked as a design consultant for NgenTec, a spin-out company from IES that designs novel direct-drive generators for wind turbines. My work and the design/optimization tool I developed during my employment are licensed to the company by the University of Edinburgh. I have a designed a 25 kW and a 1 MW machine, which are both manufactured and tested.

Then, I’ve started my PhD on superconducting generators for offshore wind turbines, a cutting-edge research topic, which is believed to have large research impact in the following years. I designed a novel generator topology, which surpasses all the existing superconducting machine designs in terms of modularity, reliability, ease of manufacturing and yet only requires 1/10th of the superconducting wire that is used by equivalent designs and hence has considerable cost advantage. During my research, I kept close relations with General Electric (previously Converteam) superconducting research group. They were very interested in the concept and now they agreed to loan some of their superconducting test equipments to UoE, including a helium cryocooler and a huge vacuum chamber, which is planned to be used by researchers within UoE. Although, I am the first researcher in IES working on superconducting machines, I believe the institute will expand its research on superconductivity using the new equipment. I believe there are many research opportunities that IES can benefit on my experience such as superconducting HVDC transmission lines (including fault current limiters, energy storage systems) and superconducting magnetic gearboxes.

Currently, I am working as a RA in Marina Platform project (EU FP7 project), which has 17 partners across Europe. The project aims to design combined floating offshore wind and wave energy platforms. On behalf of Edinburgh I managed IES’ contribution to WP7, as well as acting as the main researcher. My main contribution was compare different power take-off systems and design a reliable combined generator system for wind and wave energy, but I also took on the responsibility for developing a general design tool for use within the rest of the project. During the project, Ie led the research and represented Edinburgh at all WP meetings and the annual General Assembly, which gave me chance to make contacts for future grant applications. Having worked in different aspects of renewable energy, I have gained an insight to propose research projects and leada research group in areas that will have a high impact.

Since being awarded my BSc, I have been teaching in different courses in the field of electrical engineering. I was a research and teaching assistant in METU, Turkey for four years. I tutored in many undergraduate courses and I was the laboratory coordinator for over 200 students over several semesters. My personal teaching performance evaluations within the department were consistently in the top five. I have also been tutoring in the School of Engineering in University of Edinburgh for the last two years in 2nd year Power Engineering and 3rd year Power Generation labs. I have also been giving lectures on IDCORE courses on superconductivity. I have supervised two MSc students last year, one of my students developed an open source electrical machine condition monitoring system that runs on mobiles phones, which gained a lot of interest and a journal paper is being prepared. I am passionate about online learning, open-access data and collaborative learning. I have set-up a wiki page within the IES research group and I am the owner of a research tips blog, which has more than 2000 visitors per day.

I believe my experience in research and ambition in teaching has the potential to make significant contribution to the University of Edinburgh. Thank you for your consideration. I look forward to hearing from you soon.

Yours sincerely,

Ozan Keysan