

John Doe
123 Memorial Drive, # 2233
Cambridge, MA 09876

August 25, 2020

Professor Albert Einstein
Department of Physical Engineering
University of Genius

Dear Professor Einstein,

I am responding to your advertisement for a faculty position in the Department of Physical Engineering at University of Genius. I graduated from the Department of Aeronautics and Astronautics at MIT in June with a doctorate, and am currently working as a Postdoctoral Associate at MIT in the Department of Aeronautics and Astronautics. My thesis work is in the area of active structural acoustic control using smart structures technology, and my specific research topic is the development of a new wavenumber domain sensing method for active structural acoustic control. My thesis advisor is Professor X in the Department of Aeronautics and Astronautics at MIT.

For my Ph.D. dissertation, I have worked on the development of the structural-acoustic control algorithms and their implementation for the reduction of radiated noise from vibrating underwater vehicles. The Office of Naval Research, with an objective of developing "smart" underwater vehicle systems so that the enemy cannot detect their attack in advance, has funded this project. My responsibility in this project is to develop the new technology to reduce the radiated noise from vibrating underwater vehicles. In order to accomplish this, I have developed a new wavenumber domain sensing method and applied it to the real-time estimation of acoustic power and the design of feedback controller for active structural acoustic control of the general complex structures. Furthermore, I have designed and experimentally implemented local and global controller architectures with different configurations to find the best controller configuration for the new underwater vehicle system.

I would like to continue my research on active structural control and active structural acoustic control for complex systems, including aerospace systems (aircrafts, helicopters) and underwater vehicles (submarines, torpedoes). I will carry out research on structure/fluid/control interaction phenomena and advanced sensor/actuator development using smart structures technologies. Also, I will extend my research to the development of advanced control design techniques for noise and vibration reduction of complex systems.

My ultimate research goal is to develop "intelligent structural systems", which will contain arrays of sensors and actuators, and embedded devices for controls and decision-making algorithms, so that those systems can coordinate large numbers of devices and adapt themselves to uncertain environmental changes in an intelligent manner. I believe my extensive research experience and specialization in structural dynamics and controls will allow me to continue my research in those areas.

I have enclosed my curriculum vitae with a list of publications, and a list of references. If you have any questions or would like to talk with me, I can be reached by phone at (555) 222-1133 or email at j.doe@mail.de. Thank you for your consideration. I look forward to hearing from you soon.

Sincerely,

John Doe