Research Aid Award

Dr. Robert J. Lee, *University of California, San Francisco*

My name is Robert Lee, and I completed both my BS in bioengineering and DDS at UCLA and am currently a first year orthodontics resident at UCSF. I have a broad research background which includes basic science research in neonatology and bioengineering, translational research in orthodontics, and clinical research in oral pathology. My research has culminated into 14 peer-reviewed publications and three cover page articles (March 2014 AJO-DO, November 2015 JCO, March 2016 JCO). Orthodontics research truly excites me, and I hope to have the opportunity to contribute to the field for the rest of my career.

The goal of the proposed research is to demonstrate the accuracy, reliability, and clinical feasibility of a methodology I previously developed that can potentially monitor root movement in three dimensions at any stage of orthodontic treatment. This approach provides an alternative method to monitor root position during orthodontic treatment without the need to expose patients to further radiation. I previously published the feasibility of this methodology in a typodont and a single patient, so the goal of this project is to study this methodology quantitatively with a larger sample size. Orthodontic education will benefit from this project and award through the validation for clinical use of this methodology. Clinical use of this approach could allow orthodontists to more proactively correct for improper root position at all stages of orthodontic treatment leading to improved treatment efficiency and reduced patient radiation exposure.

This project requires segmentation of numerous teeth from CBCT scans which is too time consuming to be done manually, so the only feasible way to complete this project is to outsource the segmentation process. However, outsourcing the segmentation process is costly, so this research would not be possible without the financial support from the Foundation. I am interested in pursuing an academic career in orthodontics which would require research experience and successful completion of research projects. Thus, the Foundation is significantly helping my future academic career because this research project would not be possible without their financial support. Furthermore, the Foundation’s support of my research validates and encourages me to continue on this path for an academic career in orthodontics.