AAO Foundation Award Final Report

Type of Award	Orthodontic Faculty Development Fellowship Award
Principal Investigator	Joorok Park
Title of Project	Three-dimensional changes of the dentition after correction of Class II malocclusion
Project Year	July 1, 2013 – June 30, 2014
Amount of Funding	$15,000
Institution	University of the Pacific, Arthur A. Dugoni School of Dentistry
Summary/Abstract (250 word maximum)	The goal of this project was to develop methods for evaluating outcome of orthodontic treatment with 3D cephalometric analysis. The main focus of the study was to measure the changes of skeletal and dental landmark locations during treatment. We collected initial and final CBCT images of 22 Class II cases and 16 Class I cases treated by an expert clinician. Seven orthodontic residents were trained and calibrated to digitize 31 skeletal and 60 dental landmarks. Independent estimates of each landmark's position have been made by 3 judges. The 3 estimates have been averaged and the distance of each estimate from the mean of the three has been calculated. The outlier was computed, identified by inspection, and deleted, after which the average of the remaining estimates was recomputed. Measurement methods were developed to quantify the displacement of skeletal structures and dentition. Each case was superimposed and the displacement of the landmarks was calculated in relation to the midsagittal plane, the Frankfurt plane, and the occlusal plane frame of reference. For each central incisor, canine, and first molar, we were able to determine the changes in the position of the crown and the root apices, the inclination and the angulation of the long axis, and the rotation of the tooth during treatment.
Were the original, specific aims of the proposal realized?	Yes. I was able to develop my professional career in teaching and clinical research.

Were the results published? If not, are there plans to publish? If not, why not?	Not yet, I am currently preparing the materials for publication for the first part of this study.
Have the results of this proposal been presented? If so, when and where? If not, are there plans to do so? If not, why not?	1. I presented the result of this study at the 46th Annual Scientific Congress Korean Association of Orthodontists on November, 2013. 2. A part of the result was also presented by Dr. Sheldon Baumrind at the 2014 AADR/CADR Annual Meeting in Charlotte, NC (03/21/2014). Abstract: S. BAUMRIND, S. CURRY, J.H. AHN, H. OH, and J. PARK. Defining an Optimal Frame of Reference for Measuring CBCT Images. J Dent Res 93(Spec Iss A): 184776 2014 (www.iadr.org).
To what extent have you used, or how do you intend to use, AAOF funding to further your career?	The AAOF Orthodontic Faculty Development Fellowship Award has supported me to dedicate my time in developing my knowledge for research and teaching.