

Orthodontic Faculty Development Fellowship Award

Dr. Divakar Karanth, *University of Florida*

I'm a Clinical Associate Professor in the multi-mission track at the University of Florida College of Dentistry (UFCD). My first orthodontic residency was in India, from 1992-95. I completed my second orthodontic residency at the University of Kentucky in May 2020. My primary duty in UF orthodontic department is to provide educational and clinical services in the Orthodontic department. Within a few days after joining, I took on the responsibilities of teaching several courses and clinical training for undergraduates and orthodontic residents. The transition was quick and smooth due to my experience. In May 2021 I was Board Certified and in October 2021, CODA approved me as a Residency Program Director. I have been on the Peer Review Committee, Promotion & Tenure Committee of the UFCD. Being on these committees taught me a lot about the multi-dimension of academic setup. I'm working on getting better at these tasks. I was accepted as a member of the Angle Society's North Atlantic Component at the Angle meeting in Portugal in March 2023, where I presented my research and the clinical cases. I have served for two years in the Society of Educators of AAO, I'm currently the President. This is an excellent opportunity to grow as an emerging leader in academic orthodontics.



Educational domain: The past three years as a faculty in the University of Florida (UF) have helped me gain teaching and leadership skills. The University of Florida offers several faculty development courses I would like to attend during this grant period. I would apply those skills to enhance my academic career. I would like to improve my leadership skills and posture as an academic professor and achieve my goals as a successful faculty member. By continually participating in National and International meetings and workshops, I plan to fulfill my educational plan. With the help of my faculty mentors, I am sure to gain enough expertise needed to excel in the academic setup. UFCD offers faculty retreats which I find very beneficial in developing as an academician. I would like to attend ADEA meetings to gain expertise in academia.

Research domain: With my previous research background and the collaboration of various disciplines at the University of Florida, I would like to establish myself as an orthodontic researcher. I want to work on applications of artificial intelligence in orthodontics to provide better care for patients. This calls for establishing a solid interdisciplinary team which the University of Florida offers. I am working on developing a research lab with a preliminary focus on artificial intelligence and engaging with pre-dental, dental, and orthodontic residents in this research. I'm aiming at establishing national/international research collaborations.

Undetected root resorption causes significant harm to orthodontic patients, and available detection methods are inadequate. Although low levels of root resorption always occur with the application of orthodontic force, specific patients are susceptible, and it is difficult to identify such patients. An A.I. program that would identify root resorption from CBCT data would serve a vital need in orthodontics. This research aims to develop an artificial intelligence algorithm that will help the

clinician diagnose and quantify the amount and severity of the root volume loss from the cone beam CT scan. This will be an alternative to a clinician's subjective visual examination and interpretation. This can assist orthodontists in the early diagnosis of root resorption from the progress radiographs and pause the orthodontic treatment on time to prevent further resorption. To our knowledge, no research has been done regarding the automated diagnosis of root resorption in orthodontic patients.

Teaching domain: From the student evaluations, it is apparent that I have been doing an excellent job to the best of my abilities. However, there is always scope for improvement. I want to enhance my ability to convey the message more simplistically and dynamically by utilizing interactive teaching tools. I want to develop graphics and animation for every course we teach. I want to train myself to be better at this, and I would also like to take professional help initially. I want to attend the training course the UF conducts to enhance the teaching skill of the faculty. With the instructions from the course, I will be more efficient in adding course content and user tools, managing accounts and course tools, and conducting online exams. I plan to attend the Institute for Teaching & Learning Program (ITL Course). I want to get professional help in developing professional quality graphics, animation, and virtual reality. This would aid in teaching the residents and dental students.

Clinical domain: I would like to be more efficient in my techniques to achieve optimal results in the shortest possible time. I want to improve my clinical skills by listening to various C.E. courses, attending hands-on technique courses, and observing my senior colleagues. I would like to speak at the AAO meeting in the near future. I have been using the segmental mechanics as it was described by Dr. Burstones, whenever it is applicable, to be more clinically efficient. I will attend the 45th E. H. Angle Society Of Orthodontists Biennial Meeting in Santa Fe, NM, in Oct 2023. I would be attending ABO's educator's symposium at Saint Louis. I want to participate in future seminars to keep me abreast with the current knowledge of clinical orthodontics.

To summarize, OFDFA is going to help me in the above-mentioned areas to become a successful orthodontic educator and clinician. I would like to thank AAOF for granting me “James A. McNamara Orthodontic Faculty Fellowship Award”