



Dr. Mohamed Adel Ahmed Mohamed
2026 Orthodontic Faculty Development Fellowship Award
Texas A&M University

Short Biography

Dr. Mohamed Adel is a Clinical Assistant Professor in the Department of Orthodontics at Texas A&M University School of Dentistry. He received his dental degree and Master's degree in Orthodontics from Suez Canal University, Egypt, followed by a PhD in Orthodontics and Craniofacial Genetics through a joint supervision program between Showa University, Japan and Suez Canal University, Egypt. He subsequently completed postdoctoral research training and an orthodontic residency at the University of Kentucky.

Dr. Adel's academic career combines clinical orthodontics, education, and research. His research interests focus on craniofacial growth and development, artificial intelligence, digital orthodontics, and three-dimensional facial imaging. He is committed to integrating emerging technologies into orthodontic education and clinical practice while mentoring residents and students in evidence-based research. He currently teaches clinical orthodontics, biomechanics, literature review, and ABO preparation courses and actively supervises resident research projects.

Project Description

The project, **“Assessment of Facial Morphology Using Different Types of 3D Facial Scans and Artificial Intelligence,”** aims to develop and validate artificial intelligence-based methods for the evaluation of facial morphology and dentofacial deformities using noninvasive three-dimensional facial imaging.

Accurate assessment of facial features is a critical component of orthodontic diagnosis and treatment planning. Traditional methods rely heavily on clinician measurements, which can be time-consuming and subject to variability. Building upon the successful completion of the first phase of the project, which validated an AI-based method for assessing facial asymmetry using 3D facial photographs, the next phase will expand the technology to evaluate a broader range of facial characteristics.

The project will enhance current AI models through larger training datasets, improved landmark identification, and evaluation across diverse patient populations and imaging modalities. Future applications include comprehensive facial analysis, growth prediction, treatment simulation, and integration with mixed reality technologies for real-time clinical diagnosis and treatment planning. The long-term goal is to develop a clinically applicable AI platform that improves diagnostic precision, efficiency, and patient communication.

Benefit to Orthodontic Education

This project directly supports orthodontic education by exposing residents and dental students to emerging technologies that are transforming modern healthcare. Artificial intelligence and digital imaging are becoming increasingly important in orthodontic diagnosis and treatment planning, yet their integration into educational programs remains limited.

The knowledge gained through this project will be incorporated into resident education through lectures, seminars, case discussions, and research mentorship. Residents will have opportunities to participate in research involving AI, 3D imaging, and digital workflows, helping them develop critical thinking skills and a stronger understanding of evidence-based technology. By integrating these innovations into the curriculum, the project will better prepare future orthodontists to evaluate, adopt, and responsibly implement advanced technologies in clinical practice.

Importance of the Foundation to the Project

The AAOF Faculty Development Award plays a critical role in advancing this research program. Foundation support provides protected time and resources necessary to develop innovative research that bridges orthodontics, artificial intelligence, and digital imaging technologies.

This funding enables the continued refinement and validation of AI-based diagnostic methods, supports data collection and analysis, and facilitates collaboration with experts in related disciplines. The Foundation's investment helps generate the preliminary data required for future larger-scale investigations and external funding opportunities. Without this support, the pace and scope of the project would be significantly limited.

Impact of Foundation Funding on My Career

The AAOF Faculty Development Award has been instrumental in supporting my development as an academic orthodontist and clinician-scientist. The award provides an opportunity to expand my research program, strengthen interdisciplinary collaborations, and establish a foundation for future externally funded investigations.

As a junior faculty member, this support accelerates my growth as an educator, researcher, and mentor. It enables me to contribute new knowledge to the orthodontic profession while providing meaningful research opportunities for residents and students. The experience and outcomes generated through this project will help advance my long-term goal of becoming a leader in the integration of artificial intelligence and digital technologies within orthodontic education, research, and clinical practice.

I am deeply grateful for the Foundation's support and commitment to fostering innovation, academic excellence, and the development of future leaders in orthodontics.