Kathleen M. Kelly
Teaching Associate Professor
Department of Computer Science, CTLM 246E
303-384-2365
COLORADOSCHOOLOF**MINES**

Dear Ms. Kelly.

Thank you for the invitation to submit a project for the computer students. I have done some research on what I need to develop since we last spoke and it appears that it is best to develop this project in stages as it is more complicated than I originally thought.

My ultimate goal is to develop AI/ML that will develop orthodontic treatment plans for patients that are using clear aligners (Invisalign). The first step in developing this system is to have software that can analyze STL files from an intraoral digital scanner. This current project would involve developing software that would analyze a patient's teeth and bite. Ultimately having the software recognize the type of bite problem, the amount of crowding of the teeth, discrepancies in the proportions of the upper and lower teeth that would prevent them from fitting together correctly. This is the first step in developing the AI/ML algorithm.

Clear aligners have been around for 25 years and are 100% digital. Using the protocols, I have developed over the past 25 years we are now able to treat patients in half the time it takes with braces with half as many appointments and better results. Many of our patients are now finished with treatment in less than a year instead of 2-3 years. In the future braces will no longer be used and all treatments will be done with aligners. This is the frontier of innovation in digital orthodontics, AI/ML and 3D printing.

Please let me know if you have any questions regarding this project. I am very excited at the possibility of working with the students on this cutting-edge project.

Sincerely,

Dr. Bryan Nelson

President/CEO
Trinity Orthodontics
12880 N. Colorado Blvd.
Thornton, CO 80241
bnelson@trinityorthodontics.com
303-427-5000