

1. Tell us a little about your academic career including where you went to dental school and where you are in residency.

*I went to Ohio State for undergrad, the University of Michigan for dental school, and I am back at Ohio State for residency. I jumped around a little bit, but I'll always be a buckeye.*

2. What has your experience with 3D printing been during residency?

*An early emphasis was placed on 3D printing and scanning in residency, as part of our "OSU Way" training involved learning how to use the scanners and printers. From the beginning, every patient gets a scan, instead of impressions, for diagnostic records. We have two 3D printers in our clinic, and we even have a staff member who is dedicated to helping us troubleshoot and learn more about 3D printing operations. Our printers are used all the time, for anything as simple as printing study models for surgical cases, fabricating Essix retainers, or fabricating in-house aligners. Residents are encouraged to use 3D printing to either help finish comprehensive cases, address retreatment cases, or start and finish cases with our in-house aligner software. Additionally, during our rotations at Nationwide Children's Hospital, we have the opportunity to adjust and deliver 3D printed appliances, which is an aspect of orthodontics we would otherwise not learn in our graduate clinic. Finally, at our annual Alumni Day Lecture last year, Dr. Brent Larson delivered an all-day lecture on 3D printing operations and incorporation into the orthodontic office. So not only are we learning how to utilize 3D printing, but we are learning how it fits into both new and existing systems.*

3. Where do you see the future of 3D printing in terms of orthodontic care?

*To me, 3D printing will certainly play a large role in field of orthodontics. Even within the span of my two years of residency so far, the advances in technology are clear. The systems are more efficient and user friendly. The printing itself seems to be faster and more accurate. If we can do things faster and more accurately, it really creates a win-win situation for both patient and provider. Alginate impressions will (hopefully) be a thing of the past, as I know that neither provider nor patient likes them. Clear aligners, appliances, and even brackets can be created from 3D printed models. The improvement in accuracy with these methods will allow for greater treatment success, and less headache for the orthodontist. Greater comfort, less chair time, and quicker treatment will surely make the patients happier, which is always the goal. Technology in healthcare should be focused on improving patient outcomes and experiences, and I have high hopes for how 3D printing can impact this in the future.*

4. What are your plans post-residency?

*After residency, I am looking to join a private practice somewhere in Ohio, with the goal of eventually owning. I think it is critical to have proper mentorship in the field before becoming the ultimate decision maker.*

5. Do you plan to incorporate printing into your future practice? How?

*Given my experiences in residency, I absolutely want to incorporate 3D printing into my future practice. As I mentioned earlier, patient comfort and satisfaction should always be prioritized. 3D printing technologies would allow for that to happen. Scanning for diagnostic models would be a must for every patient. If patients need appliances, we can reduce chair time and discomfort by scanning for appliances, and we can even eliminate the need to fit bands by utilizing a 3D printing lab. I would also love to use in-*

*house aligners in my future office, as that is a skill that we have all developed in our residency, and it allows us to have a greater control of the entire treatment. Taking control of the process allows for better manipulation and regulation of tooth movements for our patients. Debond day can become more efficient for our patients, as we can take final models with a scanner and have Essix retainers for them by the time they are ready to leave the office. This all speaks to the proficiencies and precision of 3D printing in the orthodontic office.*

6. Did you have any experience with printing in dental school?

*We did not have a ton of experience with 3D printing in dental school – mostly textbook learning. We did, however, have pretty extensive training with digital scanners and the CAD/CAM process. We had competencies each year of dental school on the use of scanners, whether it be on our typodonts or patients once we reached clinic. I think a lot of my experiences with the use of scanners allowed me to smoothly transition into the orthodontic world, as I already knew how to operate the scanners and properly scan patients, despite a lack of experience with the 3D printers themselves. It seems that our 3D printing capabilities wows a lot of applicants who tour our clinic on interview day, despite it being more of a norm to us residents. That speaks volumes to both our technology at Ohio State, as well as the lack of 3D printing technology at most dental schools in the predoctoral curriculum.*

7. Do you attend any conferences and what is your favorite part of these conferences

*So far, I have attended the 2021 and 2022 GORP conferences, as well the 2022 AAO Annual Session in Miami. My residency class will all be attending the AAO Annual Session in Chicago in a couple months. By far my favorite part of all of these conferences is the people. Whether it be residents from other programs, or orthodontists from around the world, everyone is so warm and welcoming to each other. The orthodontic community is tight-knit, and no matter where you are, you feel like you are part of one big team. I have certainly created and even strengthened relationships at these conferences, as it is quite unique to our small field that we can see the same people again and again each year. Catching up with former dental school classmates is always a joy, as well. Learning that we all share similar experiences in residency, whether positive or negative, is very comforting.*

8. What role has the AAO/GLAO played in your orthodontic education?

*The largest role that the AAO/GLAO has played in my education thus far is presenting the opportunity to attend these annual conferences. The ability to listen to world-renowned speakers lecture on the advances in our field is invaluable. Furthermore, the AAO Foundation offers a Resident Education Program, which provides residents a one-time stipend to attend the AAO Annual Session. The Foundation is making the conference more accessible and more affordable to residents, which is a huge gift to us all. I'm sure I speak for all residents when I say thank you to the AAO Foundation for their remarkable generosity!*