Curriculum Vitae

Manal Hamdan DDS, MS, MFDRCSI

Diplomate American Board of Oral and Maxillofacial Radiology

Education

University of North Carolina – Chapel Hill, NC
July 2018-June 2021

- Certificate in Oral and Maxillofacial Radiology
- Master of Science Degree in Oral and Maxillofacial Radiology

University of Jordan – Amman, Jordan
September 2010- June 2015

- Doctor of Dental Surgery (DDS)
- GPA: 3.82 / 4.0 (Ranked 1st /135)

First Lebanon High School – Al-Ain, UAE
September 2009- May 2010

- High School Diploma

Current Professional Experience

October 2022– Present
Director, Oral and Maxillofacial Radiology Program • Surgical and Diagnostic Sciences Department, Marquette University School of Dentistry.

August 2022– Present
Assistant Professor • Surgical and Diagnostic Sciences, Marquette University

December 2021– Present
Adjunct Assistant Professor • Oral and Maxillofacial Radiology Department, Adams School of Dentistry, University of North Carolina at Chapel Hill.

Current Research Experience

December 2024 – Present
Ambassador and Researcher • Autodontics

February 2022- July 2023
Researcher, Topic Group Dental Diagnostics and Digital Dentistry • The World Health Organization/ International Telecommunication Union Focus Group AI on Health, Berlin, Germany

Past Professional and Research Experiences:

July 2021– October 2021
Assistant Professor and Director of Oral and Maxillofacial Radiology • Adult Restorative Dentistry Department, University of Nebraska Medical Center - College of Dentistry.

October 2020– February 2021
Chief Resident • Oral and Maxillofacial Radiology Department, Adams School of Dentistry, University of North Carolina at Chapel Hill.

October 2018– September 2019
Residents' Committee Member • American Academy of Oral and Maxillofacial Radiology.

July 2018– July 2021
Graduate Teaching Assistant • Oral and Maxillofacial Radiology Department, Adams School of Dentistry, University of North Carolina at Chapel Hill.

January 2017– January 2018
Research and Teaching Assistant • Maxillofacial Surgery, Oral Medicine and Periodontology Department, School of Dentistry, University of Jordan.

August 2016– January 2017
General Dentist • Al-Taj Private Dental Clinic, Amman, Jordan.

July 2015– July 2016
General Dental Internship • Jordan University Hospital, Amman, Jordan.

Awards and Fellowships

Will be in ducted in October 2025
Fellowship • International College of Dentists (FICD) – Honors society, by invitation only.

April 2025
PI and mentor for the Oral Research Presentation Resident Winner – 2rd Place • American Academy of Endodontics (AAE)

June 2023– August 2023
Summer Research Institute Fellowship • Marquette University School of Dentistry.

October 2020
Albert G. Richards Graduate Student Research Award • American Academy of Oral and Maxillofacial Radiology (AAOMR)

October 2020
Best Research Poster Award • American Academy of Oral and Maxillofacial Radiology (AAOMR)

July 2020
Elsie and Baxter Sapp Fellowship • North Carolina Dental Foundation

September 2018
Ann and G. Randolph Babcock Fellowship • North Carolina Dental Foundation

June 2015
Academic Excellence Award (Rank 1St on DDS class of 2015) • University of Jordan

Examinations

November 2023
Passed part two of the American Board of Oral and Maxillofacial Radiology (ABOMR)

September 2022
Passed part one of the American Board of Oral and Maxillofacial Radiology (ABOMR).

December 2021
Passed Dental Licensure Objective Structured Clinical Examination (DLOSCE).

May 2017 and June 2017
Passed both parts of the National Boards Dental Examination (NBDE).

October 2015 and December 2016
Passed both parts of the Membership of the Faculty of Dentistry of the Royal College of Surgeons in Ireland Examination (MFD RCSI).

Licensure

2022 – Present
Dental Faculty License • Wisconsin

2022 – Present
Unrestricted Dental License • Washington

2021 – 2023
Dental Faculty License • Nebraska

2018 – 2021
Intern Permit • North Carolina

2016 – Present
Unrestricted Dental License • Jordan

Teaching Activities at Marquette University

Fourth-Year DDS Courses:

- *Course Co-Director*: DEGD 7434. Senior Honors Practicum in Digital Dentistry and Radiology. 1 cr. hrs.
  Advanced course designed for the top-performing students in their final year, emphasizing the mastery of digital dentistry technologies and advanced radiology. The program encompasses a comprehensive curriculum that includes high-level lectures on modern digital practices such as intraoral scanning, 3D printing, and CAD/CAM systems, with a special focus on Cone Beam Computed Tomography (CBCT). Role: Director of Oral Radiology content and advanced CBCT interpretation.

- DECS 7414. Senior Clinical Practicum in Comprehensive Patient Care (1). 5 cr. hrs.
  Students are expected to demonstrate their ability to provide dental services to restore oral health and function for patients requiring a range of skilled care from simple to complex. Students are also assigned to rotational experiences at external clinics, where additional exposure to a variety of populations increases patient management skills. Role: Director of the Oral Radiology content.

- DECS 7424. Senior Clinical Practicum in Comprehensive Patient Care (2). 5 cr. hrs.
  Students are expected to demonstrate their ability to provide a broad range of dental services to a diverse population of patients requiring a range of skilled care from simple to complex. Students are expected to provide care in a variety of community and rural settings. Students are expected to complete all appraised clinical experiences (ACE), demonstrating clinical competency and the ability to be a safe entry-level dental healthcare provider. Students also provide service to the school and the community. Role: Director of the Oral Radiology content.

Third-Year DDS Courses:

- *Course Director*: DEIN 7320. Clinical Radiology and Oral Pathology. 2 cr. hrs.
  Present the various clinical, histopathologic and radiographic appearance of oral pathologies. Emphasis will be placed on differential diagnosis and the correlation between clinical, microscopic and radiographic findings. In addition, the student will be introduced to advanced imaging modalities as they relate to the head and neck.

- DECS 7314. Comprehensive Patient Care Practicum (1). 5 cr. hrs.
  Third year dental students interact with members of the dental team and deliver care under circumstances which are similar to a large group practice. Role: Director of the Oral Radiology content.

- DECS 7324. Comprehensive Patient Care Practicum (2). 5 cr. hrs.
  Third year dental students interact with members of the dental team and deliver care under circumstances which are similar to a large group practice. Builds on the initial Comprehensive Care Practicum, DECS 7314. Students are expected to provide clinical care across the various disciplines of dentistry. Role: Director of Oral Radiology, radiology rotation and CBCT Small group discussion.

- DECS 7334. Comprehensive Patient Care Practicum (3). 5 cr. hrs.
  Third-year dental students are expected to provide comprehensive clinical care across various disciplines of dentistry. Focus is on increasing clinical skills and completing appraised clinical experiences, demonstrating clinical competency in a variety of areas. S/U grade assessment. Role: Director of Oral Radiology content.

Second-Year DDS Courses:

- DEIN 7210. Oral Medicine and Diagnosis (2). 2 cr. hrs.
  Continuation of the Oral Medicine and Diagnosis sequence. It includes behavioral and pharmacological management of the patient including anxiety and pain management. The student is also exposed to basic diagnostic procedures including taking an appropriate patient history, patient interviewing, selection and application of radiographs and conducting a comprehensive oral examination. Role: covering the oral radiology aspect of this course.

- DEIN 7223. Oral Medicine and Diagnosis (3). 2 cr. hrs.
  Continuation of the Oral Medicine and Diagnosis sequence. Includes behavioral sciences and advanced treatment planning of the patient. Examines the details of the systemic, definitive and maintenance phases of treatment, mainly through small workshops. Students interact and brainstorm different cases in order to finalize treatment plans for any patient. Students discover the importance of an effective case presentation and identify the parts of a case presentation from a communication perspective. Role: covering the oral radiology aspect of this course.

- DEIN 7221. Care of the Pediatric Patient. 2 cr. hrs.
  Designed to provide a comprehensive overview of pediatric dentistry by integrating several clinical disciplines. It will prepare the general dentist to provide dental care to children from infancy to early adolescence. Role: providing a lecture on radiological diagnosis of dental anomalies in the pediatric patient.

- DEIN 7230. Introduction to Implants 3 cr. hrs.
  Includes a comprehensive overview of diagnosing, treatment planning, surgical placement, restoring and maintaining of dental implants. Emphasis will be on pre-clinical simulation of clinical and laboratory procedures required for successful implant restoration. Role: providing a lecture on CBCT in implant planning.

- DEIN 7214 Introduction to Clinical Practice 4. 1 cr. hrs.
  Moves the student from a novice student to becoming a competent dental practitioner. Requires the student to assimilate and utilize information and skills introduced during the first-year clinical practice sequence. Emphasizes, through various clinical assignments, further development of clinical and patient management skills. Role: Director of Oral Radiology content.
- DEIN 7224. Intermediate Clinical Practice. 4 cr. hrs.
  Continuation of DEIN 7214 and the beginning of more direct patient care. Students are given clinical assignments to the Comprehensive Patient Management Groups to provide supportive periodontal therapy (type 1 and 2 cases) for the populations they serve. Students rotate to the Milwaukee Public Schools to place sealants on young children. Students provide comprehensive examinations, treatment plans and simple restorative procedures on assigned patients in their Group. Role: Director of Oral Radiology content.
- DEIN 7234. Clinical Dental Practice. 4 cr. hrs.
  Students interact with the dental team and deliver dental care under circumstances similar to a large group practice. Following a selection of patients by the group leader, a wide range of patients is assigned, assuring a broad clinical experience in general dentistry. Student progress is closely monitored and is measured by daily performance assessments and several competency examinations. Role: Director of Oral Radiology content.

First-Year DDS Courses:

- DEIN 7110. Foundations of Oral Health 1. 3 cr. hrs.
  The goal of this colloquia sequence is to provide dental students with a comprehensive overview of the contemporary practice of dentistry and to initiate them in an educational process that will culminate with their entry into the profession. Inter-disciplinary discussions about what dentists do when serving patients with a broad range of health problems are used to introduce students to the knowledge, skills, and experience that are fundamental to the delivery of modern oral health care. Role: presenting topics in Oral Radiology such as introduction to radiology.
- DEIN 7120. Foundations of Oral Health 2. 3 cr. hrs.
  The goal of this colloquia sequence is to provide dental students with a comprehensive overview of the contemporary practice of dentistry and to initiate them in an educational process that will culminate with their entry into the profession. Inter-disciplinary discussions about what dentists do when serving patients with a broad range of health problems are used to introduce students to the knowledge, skills, and experience that are fundamental to the delivery of modern oral health care. Role: presenting topics in Oral Radiology such as caries interpretation and detection.
- DEIN 7130. Oral Medicine and Diagnosis (1). 4 cr. hrs.
  The first in a sequence of courses that provides the framework for diagnosis and evaluation of the dental patient. It deals with physical evaluation including basic interviewing skills, taking a comprehensive medical history, taking and evaluating vital signs, ordering appropriate laboratory tests and an overview of infectious diseases. Role: covering the oral radiology aspect of this course.
- DEIN 7114 Introduction to Clinical Practice (1). 4 cr. hrs.
  The first of three courses in the first-year clinical practice sequence. Core modules have been designed to provide fundamental knowledge, skills and experiences that enable first-year students to become directly involved in interactions with patients. Students are provided extensive laboratory experience in periodontics which prepares them to deliver oral prophylaxis and basic scaling of teeth. Students also gain sufficient working knowledge of dental radiography to be able to participate in basic delivery of oral health care examinations to patients. Role: Director of Oral Radiology content.
- DEIN 7124 Introduction to Clinical Practice (2). 4 cr. hrs.
  The second of three courses in the first-year clinical practice sequence. Designed to provide fundamental knowledge, skills and experience that enable first-year students to become directly involved in interactions with patients. Introduces the student to additional clinical practices including behavioral sciences and the use of the axiUm EHR software system. New core educational components are introduced in small group interactions, rather than lectures, and allow for more hands-on training in these areas to prepare the student for patient care. The core educational components are periodontics, radiology, axiUm and behavioral sciences. The other clinical assignments include, but are not limited to, the screening clinic, the comprehensive patient management groups, public health and the pediatric clinic. Role: Director of Oral Radiology content.
- DEIN 7134 Introduction to Clinical Practice (3). 4 cr. hrs.
  The third of three courses in the first-year clinical practice sequence. Students gain broader experience and sufficient working knowledge of basic periodontics, dental radiography, infection control, how to interact with patients, dental assisting and related topics to be able to participate in a meaningful role in the delivery of oral health care to patients. Role: Director of Oral Radiology content.

Graduate Courses:

- *Course Director*: DENT 6002-107, Didactic Core Curriculum (2). 1 cr. hrs.
  This course provides lectures and practical lab sessions on the principles of theory and application that build up a working knowledge of cone-beam computed tomography for dental residents. The course goal is to aid in the development of a fundamental knowledge of CBCT anatomy, applications, and interpretation of common incidental findings and disease processes. It also covers appropriate patient care and referral for specialty imaging and advanced interpretation
- DENT 6999 Master's Thesis. 1-6 cr. hrs.
  Role: Faculty adviser.

Previous Teaching Activities

- DENT 433, Clinical Radiology (UNC)
- DENT 333, Clinical Radiology (UNC)
- DENT 308, Radiologic Interpretation (UNC)
- DENT 233, Clinical Radiology (UNC)
- *Course Director* for ADRS 562, Radiographic Interpretation (UNMC)
- DENT 125, Introduction to Radiology (UNC)
- DHY 414, Radiographic Interpretation (UNC)
- *Course Director* for ADRS 314, Clinical Dental Radiology for Dental Hygiene (UNMC)
- *Course Director* for ADRS 415, Clinical Dental Radiology for Dental Hygiene (UNMC)
- ORAD 802, Clinical Radiology Conference (UNC)
- *Course Director* of Advanced Radiology for Dental Residents (UNMC)

CE Courses and Workshops Presented:

- Oral Radiology for the Dental Auxiliary (16 Credit hours) Delivered at UNMC College of Dentistry.
- Basics of CBCT Interpretation Workshop (3 hours), Delivered to Marquette Endodontics Residents and Faculty (July 2023, July 2024, July 2025).
- CBCT Applications in Orthodontics, Delivered to Marquette Orthodontics Residents and Faculty (July 2024).

Research Activities

Master's Thesis:

Hamdan, M. (2021). Detecting Apical Radiolucencies Using Deep Learning Technology (Doctoral dissertation, The University of North Carolina at Chapel Hill).

Grant Applications:

Title:	Detection of Landmarks on Panoramic Radiographs Using A Computer Vision Software
PI:	Dr. Manal Hamdan
Source:	Marquette University Participating (NTT) Faculty Research Grant
Your Role:	PI
Dates:	11/22-06/23
Funding at MU:	$2500
Status:	Funded

Title:	Development and Validation of a Machine Learning Model for The Detection of Dentomaxillofacial Structures on Panoramic Radiographs
PI:	Dr. Manal Hamdan
Source:	Northwestern Mutual Data Science Institute
Your Role:	PI
Dates:	7/2023-12/2024
Funding at MU:	$50000
Status:	Declined

Title:	Honors Program in Digital Dentistry at Marquette University School of Dentistry.
PI's:	Drs. Zaid Badr, Manal Hamdan and Arndt Guentsch
Source:	Straumann University Programs & Educational Research
Your Role:	PI
Dates:	7/2024-7/2025
Funding at MU:	$30000 + Digital Equipment
Status:	Funded

Title:	Digital Dentistry Curriculum Enhancement at Marquette University.
PI's:	Drs. Zaid Badr, Manal Hamdan, Moawia Kassab and Arndt Guentsch
Source:	Straumann University Programs & Educational Research
Your Role:	PI
Dates:	7/2025-7/2026
Funding at MU:	$40000 + Digital Equipment
Status:	Funded

Publications (With Marquette)

Books:

- Schwendicke, F., Chaudhari, P. K., Dhingra, K., Uribe, S., & **Hamdan, M.** (2025). Artificial intelligence for oral health care (1st ed.). Springer Nature. https://doi.org/10.1007/978-3-031-84047-0

Book chapters:

- **Hamdan, M.**, Badr, Z., & Uribe, S. E. (2025). Artificial Intelligence Applications in Oral Health Imaging. In *Artificial Intelligence for Oral Health Care: Applications and Future Prospects* (pp. 23–39). Springer Nature. https://doi.org/10.1007/978-3-031-84047-0_2

Peer-reviewed journal articles:

- Badr, Z., Jaworski, J., D'Acquisto, S., & **Hamdan, M.** (2025). Digitally-Driven Surgical Guide for Alveoloplasty Prior to Immediate Denture Placement. *Dentistry Journal*, *13*(8), 333.

- Uribe, S. E., **Hamdan, M. H.,** Valente, N. A., Yamaguchi, S., Umer, F., Tichy, A., Pauwels, R., & Schwendicke, F. (2025). Evaluating dental AI research papers: Key considerations for editors and reviewers. *Journal of dentistry*, *160*, 105867.

- **Hamdan, M. H.,** Uribe, S. E., Tuzova, L., Tuzoff, D., Badr, Z., Mol, A., & Tyndall, D. A. (2025). The influence of a deep learning tool on the performance of oral and maxillofacial radiologists in the detection of apical radiolucencies. *Dento maxillo facial radiology*, *54*(2), 118–124.

- Gonzalez, C., Badr, Z., Güngör, H. C., Han, S., & **Hamdan, M. H.** (2024). Identifying Primary Proximal Caries Lesions in Pediatric Patients From Bitewing Radiographs Using Artificial Intelligence. Pediatric Dentistry, 46(5), 332-336.

- Yu, K. W., **Hamdan, M. H.,** & Sidow, S. J. (2024). Ectopic Dental Canal: A Case Report Highlighting a Unique Bifid Mandibular Canal Variant. *Journal of endodontics*, *50*(12), 1772–1776.

- Badr, Z., **Hamdan, M.**, Han, S., & Sulaiman, T. (2024). Effect of surface finish and resin cement on the bond strength to CAD-CAM ceramics for interim resin-bonded prostheses. *The Journal of prosthetic dentistry*, *131*(3), 458.e1–458.e7.

- **Hamdan M,** Badr Z, Bjork J, Saxe R, Malensek F, Miller C, Shah R, Han S, Mohammad-Rahimi H. (2023). Detection of dental restorations using no-code artificial intelligence. Journal of Dentistry, 139, 104768.

- Rokhshad, R., Ducret, M., Chaurasia, A., Karteva, T., Radenkovic, M., Roganovic, J., **Hamdan, M**., Mohammad-Rahimi, H., Krois, J., Lahoud, P., & Schwendicke, F. (2023). Ethical considerations on artificial intelligence in dentistry: A framework and checklist. Journal of dentistry, 135, 104593.

- **Hamdan, M. H**., Tuzova, L., Mol, A., Tawil, P. Z., Tuzoff, D., & Tyndall, D. A. (2022). The effect of a deep-learning tool on dentists' performances in detecting apical radiolucencies on periapical radiographs. Dentomaxillofacial Radiology, 51(7), 20220122.

Publications (Before Marquette)

Peer-reviewed journal articles

- AbuKaraky, A. E., Alhadidi, A., Hamdan, A. A., **Hamdan, M**., & Alsoleihat, F. (2019). Morphometric Predictors of Lingual Undercut Depth in the Posterior Mandible and their Relevance to Immediate Dental Implant Insertion: Recommendations for CBCT. International Journal of Morphology, 37(3).

- Odeh, N. D., Abu-Hammad, O., Kutkut, A., Samara, M., Badr, Z., **Hamdan, M.**, & Shehabi, A. (2016). Oral candida carriage in waterpipe and cigarette smokers with various dietary habits. International Archives of Medicine, 9.

- Hassona, Y., **Hamdan, M**., Shqaidef, A., Abu Karaky, A., & Scully, C. (2015). Ellis-Van Creveld syndrome: dental management considerations and description of a new oral finding. Special Care in Dentistry, 35(6), 312-315.

***Whitepapers*:**

- Topic description document (TDD) which describes the activities of the Topic Group Dental Diagnostics and Digital Dentistry/ITU Focus Group on AI for Health. It covers scientific, technical, and administrative aspects relevant to AI activities in the field (and follows the template structure defined in document FGAI4H-J-105). The creation of this TDD was an ongoing iterative process until it is approved by the Focus Group on AI for Health (FG-AI4H) as deliverable No. 10.17.
  Link: https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/_layouts/15/WopiFrame2.aspx?sourcedoc=%7B8214D089-1914-4004-868C-D70B88812346%7D&file=FGAI4H-S-010-A01.docx&action=default&CT=1688860434807&OR=DocLibClassicUI

***Submitted/Finalized for publication*:**

- Pereira N, Arsiwala L, **Hamdan M**, Tryfonos O, Unsal B, Karteva T, Badr Z. The use of Artificial Intelligence in dental imaging for endodontics: a Systematic Review.
- Sergio E Uribe, **Manal H. Hamdan**, Nicola Alberto Valente, Satoshi Yamaguchi, Fahad Umer, Antonin Tichy, Ruben Pauwels, Falk Schwendicke. Evaluating Dental AI Research Papers: Key Considerations for Editors and Reviewers.
- Badr Z, **Hamdan M**, Nunes MF. Absorbency of Knitted Retraction Cords; the Efficacy of the Active Wetting Technique in Overcoming the 20-Minute Wetting Period.
- **Hamdan M**, Yu K, Miller M, Sidaw S, Badr Z, Uribe S. Evaluation of a no-code AI model for detecting periapical radiolucencies: impact of anatomical region on diagnostic performance.
- Badr Z, **Hamdan M**, Han S, Sulaiman TA. Effect of surface finish, resin cement and yttria content on the bond strength to zirconia for interim resin-bonded prosthesis

Published refereed abstracts:

- Yu, K., Badr, Z., Sidow, S., & **Hamdan, M.** (2025). Evaluation of Periapical Lesion Detection by Anatomical Region Using a No-Code Artificial Intelligence System: OR05. *Journal of Endodontics*, *51*(3), e2.
- **Hamdan, M.,** Miller, M., Badr, Z., Yang, K. & Sidow, S. (2024). Exploring the Potential of No-Code AI for Identifying Periapical Radiolucent Lesions. Oral Surgery, Oral Medicine, Oral Pathology and Oral Radiology, (In Press)

- **Hamdan, M.**, Pietz, W., & Rawal, Y. (2024). Diagnosis of Fibromuscular Dysplasia Following an Incidental Finding on a CBCT for Dental Implant Planning. Oral Surgery, Oral Medicine, Oral Pathology and Oral Radiology, (In Press)
- **Hamdan, M.,** Uribe, S., Tuzova, L., Tuzoff, D., Badr, Z., Mol, A., Tyndall, D. (2024). Influence of Deep Learning on Radiologists' Detection of Apical Radiolucencies. J Dent Res 103 (Spec Iss A): 1863.
- **Hamdan, M.,** Bjork, M. J., Saxe, M. R., Miller, M. C., Malensek, M. F., & Shah, M. R. (2025). Detection of dental restorations on panoramic radiographs using a no-code computer vision platform. Oral Surgery, Oral Medicine, Oral Pathology and Oral Radiology, 139(3), e92.
- **Hamdan, M.,** Platin, E., Broome, A., & Mol, A. (2021). Detection of Primary Occlusal Caries Using Stationary Intraoral Tomosynthesis: A Pilot Study. Oral Surgery, Oral Medicine, Oral Pathology and Oral Radiology, 132(3), e120.
- **Hamdan, M.,** Mol, A., Tawil, P., Tuzoff, D., Tuzova, L., & Tyndall, D. (2021). Detecting Apical Radiolucencies Using Deep Learning Technology: A PILOT STUDY. Oral Surgery, Oral Medicine, Oral Pathology and Oral Radiology, 132(3), e112

Journal and Grant Review:

- Reviewer, Journal of Dentistry (Elseveir), manuscripts on artificial intelligence.
- Reviewer, BMC Oral Health (Springer Nature), manuscripts on artificial intelligence.
- Reviewer, Clinical Oral Investigations (Springer Nature), manuscripts on artificial intelligence.
- Reviewer, npj Digital Medicine (Springer Nature), manuscripts on artificial intelligence.
- Reviewer, Journal of Oral Rehabilitation (Wiley), manuscripts on artificial intelligence.
- Reviewer, Oral Surgery, Oral Medicine, Oral Pathology and Oral Radiology (Elseveir), manuscripts on artificial intelligence and American Academy of Oral and Maxillofacial Radiology meeting abstracts for 2022, 2023, 2024 and 2025.
- Technical grant reviewer, Maryland Industrial Partnerships (MIPS) program-grants for technology product development (June 2023).

Ongoing Projects:

- Regulatory Guidelines for AI in Dentistry: A Systematic Scoping Review.
- The Influence of Using AI on the Accuracy of Endodontists and Students at Determining the Presence of Periapical Lesions
- The Influence of Using AI on the Accuracy of Dental Students at Determining the Presence of Dental Caries Lesions Using Bitewings
- Detection and Classification of Furcation Bone Loss Using AI
- Breaking Barriers: No-Code AI in Dentistry

Graduate Student Research Mentorship:

- 2024 – Present: Dr. Sarah Kanchwala, MS in Endodontics, “The Influence of Using AI on the Accuracy of Endodontists and Students at Determining the Presence of Periapical Lesions.”
- 2023 – 2024: Dr. Kevin Yu, MS in Endodontics, “Ectopic dental canal: Case Report.”

- 2024 – 2025: Dr. Kevin Yu, MS in Endodontics, “The Impact of Lesion Location and Endodontic Treatment Status on the Accuracy of Computer Vision in Detecting Periapical Lesions on Intraoral Radiographs.”
- 2023 – 2025: Dr. Marguerite Miller, MS in Endodontics, “Detection of Periapical Radiolucent Lesions on Radiographs Using a No-Code AI Platform.”

Pre-doctoral Student Research Mentorship:

- 2024 – Present: Grace Flynn, DDS candidate, Class of 2026
- 2024 – Present: Mitchell Buban, DDS candidate, Class of 2026
- 2024 – Present: Leia Fox, DDS candidate, Class of 2026
- 2024 – Present: Lloyd Kay, DDS candidate, Class of 2026
- 2024 – 2025: Sofia D’Acquisto, DDS candidate, Class of 2025
- 2023 – 2024: Rakhi Shah, DDS candidate, Class of 2025
- 2023 – 2024: Francesca Malensek, DDS candidate, Class of 2024
- 2023 – 2024: Caroline Miller, DDS candidate, Class of 2025

Oral and Poster Presentations With Marquette

June 2025 – 2025 TG Dental Meeting on AI in Dentistry, WHO/ITU/WIPO, Munich, Germany (International Level)

- Oral Presentation: “No-Code AI in Dentistry”.

April 2025 - American Academy of Endodontics Annual Meeting, Boston, Massachusetts (National Level)

- PI and mentor for a resident oral presentation titled: “Evaluation of Periapical Lesion Detection by Anatomical Region Using a No-Code Artificial Intelligence System”.

February 2025- The American Prosthodontic Society, Chicago, Illinois (National Level)

- Co-authored a poster titled: “Digitally Driven Surgical Guide for Alveoloplasty Prior to Immediate Denture Placement”.

February 2025- MUSoD Research Day (Local Level)

- PI and mentor for a resident poster titled “Exploring the Potential of No-Code Artificial Intelligence in Identifying Periapical Radiolucent Lesions”.
- PI and mentor for a resident poster titled “Periapical Lesion Detection by Anatomical Region using No-Code Artificial Intelligence”.

October 2024 - American Academy of Oral and Maxillofacial Radiology Annual Meeting, Honolulu, Hawaii (National Level)

- Poster 1: “Exploring the Potential of No-Code AI for Identifying Periapical Radiolucent Lesions”
- Poster 2: “Diagnosis of Fibromuscular Dysplasia Following an Incidental Finding on a CBCT for Dental Implant

Planning”

April 2024 All India Institute of Medical Sciences – Artificial Intelligence in Oral Health Science, India (International Level)

- Invited Oral Presentation: “Radiological Requirements for AI Applications in Dentistry”.

March 2024 - IADR/AADOCR/CADR General Session, New Orleans, Louisiana (International Level)

- Poster: “Influence of Deep Learning on Radiologists' Detection of Apical Radiolucencies”.

February 2024- The American Prosthodontic Society, Chicago, Illinois (National Level)

- Co-authored a poster titled: “Effect of Surface Finish and Resin Cement on the Bond Strength to Zirconia for Interim Resin-Bonded Prostheses”.

February 2024- MUSoD Research Day (Local Level)

- Poster: “Influence of Deep Learning on Radiologists' Detection of Apical Radiolucencies”.
- Co-authored a poster titled: “Effect of yttria content, surface finish and resin cement on the bond strength to zirconia”.

November 2023 - Annual Hinman Student Research Symposium, Memphis, Tennessee (National Level)

- PI and mentor for the selected Hinman MOSOD student awardee to present a poster titled: “Detecting Restorations on Panoramic Radiographs Using a No-Code Computer Vision Platform”.

October 2023 - American Academy of Oral and Maxillofacial Radiology Annual Meeting, Atlanta, Georgia (National Level)

- PI and mentor for a student poster titled: “Detecting Restorations on Panoramic Radiographs Using a No-Code Computer Vision Platform”.

May 2023- American Academy of Endodontics Annual Meeting, Chicago, Illinois (National Level)

- Co-authored a poster titled: “Deep Learning Technology Assisted Interpretation of Working Length Radiographs in the Preclinical Setting: A Pilot Study”.

March 2023- MUSoD Research Day (Local Level)

- Oral Presentation: “The effect of a deep-learning tool on dentists’ performances in detecting apical radiolucencies on periapical radiographs”.

February 2023- The American Prosthodontic Society, Chicago, Illinois (National Level)

- Co-authored a poster titled: “The effect of surface finish and resin cement on shear bond strength to glass ceramics”.

March 2023 - 2nd Dental Symposium on AI in Dentistry, WHO/ITU FG-AI4H, Boston, Massachusetts (International Level)

- Oral Presentation: “Apical Lesions’ Detection with Artificial Intelligence”.

September 2022 - Dental Symposium on AI in Dentistry, WHO/ITU FG-AI4H, Helsinki, Finland (International Level)

- Led the panel discussion on the use of AI in dentistry.

Before Marquette

October 2020 - American Academy of Oral and Maxillofacial Radiology Annual Meeting, Virtual (National Level)

- Poster 1: “Detecting Apical Radiolucencies Using Deep Learning Technology: A Pilot Study”.
- Poster 2: “Detection of Primary Occlusal Caries Using Digital IO Radiographs, CBCT and s-IoT”.

February 2020 - Dental Research Day, UNC- Adams School of Dentistry (Local Level)

- Poster: “Detecting Apical Radiolucencies Using Deep Learning Technology”.

June 2014 - Scientific Conference of the Jordan University Faculty of Dentistry, Amman, Jordan (National Level)

- Oral Presentation: “Orofacial Manifestations of Ellis-Van Creveld Syndrome”.
- Poster: “Oral Diseases Encountered by Dental Students at Oral Diagnosis Clinics at the University of Jordan Hospital”.

Service and Volunteer Experience

Marquette University School of Dentistry

2023 – 2026
- University Academic Senate Member – Elected Member

2024
- Search Committee Chair for a Radiology Clinical Supervisor Position
- Search Committee Member for Pediatric Clinical Professor Position

2023 – present
- Faculty advisor for the Digital Dentistry Study Club at MUSoD

2022 – 2023
- Search Committee Chair for a Radiology Clinical Supervisor Position
- Faculty advisor for the Mental Health and Wellness Committee

The World Health Organization/ International Telecommunication Union

2025
- Organization Committee Member for the Dental Symposium on AI in Dentistry, FG-AI4H-TG-Dental

2022
- Organization Committee Chair for the Dental Symposium on AI in Dentistry, FG-AI4H-TG-Dental, Helsinki, Finland.

American Academy of Oral and Maxillofacial Radiology
2025 -Present
- CE Committee member

2023 - 2024
- Poster Awards Judge

2022 -Present
- Research and Technology Committee member

University of North Carolina – Chapel Hill, NC

2018 – 2019
- Volunteer Attending Faculty at Student Health Action Coalition (SHAC clinic)

University of Jordan – Amman, Jordan

2010 – 2015
- Participated in several oral health campaigns throughout Amman and the University of Jordan.
- Directed "Miles of Smiles", a dental examination and oral health awareness campaign held at the University of Jordan.

Society Memberships

2025- Present
Fellow • International College of Dentists (ICD)

2023- Present
Member • International Association for Dental Research (IADR)
Member • American Association for Dental, Oral and Craniofacial Research (AADOCR)

2020-2021
In-Training Member • American Society of Head & Neck Radiology (ASHNR)

2019- 2021
Member • North Carolina Dental Society (NCDS)

2018- 2021
Member • American Dental Association (ADA)

2018- Present
Member • American Academy of Oral and Maxillofacial Radiology (AAOMR)

2016- Present
Member • Faculty of Dentistry of the Royal College of Surgeons in Ireland (MFD)

2015- 2020

Member • Jordanian Dental Association (JDA)