

## What is AI ?

Artificial intelligence (AI) is a newer technology that has been widely used in applied in dentistry. Artificial intelligence technology is mainly composed of a neural network architecture similar to the human brains and which intern mimics the human thinking.



## Recent Advances in Digital AI Dentistry

- AI-Integrated Digital Scanners
- Robotics in Endodontic Surgery
- AI-Based Virtual Treatment Planning

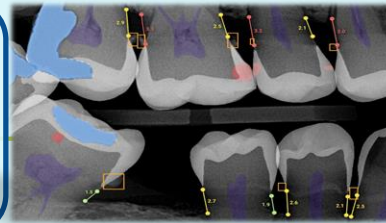
## Future Perceptive

- AI-Assisted Surgery
- AI in Minimally Invasive Dentistry
- Predictive Models

## Challenges

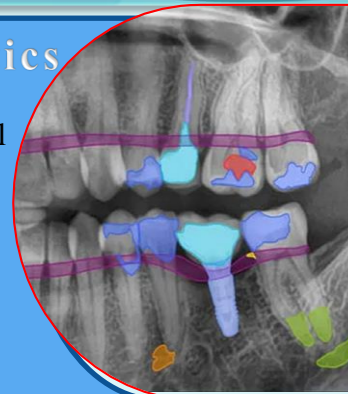
- Data Quality and Availability
- Integration with Existing Systems
- Regulatory and Ethical Concerns
- Interpretability of AI Models
- Cost and Accessibility
- Training and Adaptation
- Clinical Validation
- Resistance to Change
- Variability in Clinical Practice
- Dependence on Technology

- ### Applications in Conservative Dentistry:
- Caries Detection
  - Caries Extent & Type Identification
  - Detection of tooth preparation margins
  - Tooth Fracture Detection
  - Prediction of restoration failure

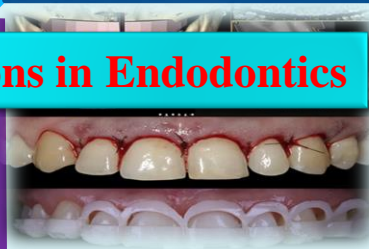


## Applications in Endodontics

- Root morphology
- Viability of dental pulp stem cell prediction
- Working Length Determination and locating the apical foramen
- Periapical Lesion Detection
- Retreatment predictions



- Detections
- ✓ Caries
- ✓ Apical lesion
- ✓ Filling
- ✓ Crown
- ✓ Bridge
- ✓ Implant
- ✓ Root canal filling
- ✓ Mandibular canal
- ✓ Calculus
- ✓ Bone loss



## Applications in Endodontics

### AI in Aesthetic Procedures

The evolution of AI will likely not replace dentists, but would be a perfect addition to accentuate their expertise and support them.

## Conclusion:

AI is revolutionizing Conservative Dentistry and Endodontics by improving diagnostic precision, enhancing treatment outcomes, and streamlining clinical workflows. Its continued development will likely bring more