

MADHAV INSTITUTE OF TECHNOLOGY & SCIENCE, GWALIOR (M.P.), INDIA
माधव प्रौद्योगिकी एवं विज्ञान संस्थान, ग्वालियर (म.प्र.), भारत
(Deemed to be University)

NAAC ACCREDITED WITH A++ GRADE



Internship work Presentation

Submitted To:-

Dr. Khushboo Agrawal

Submitted By:-

Ishita Rochlani

0901CD211030

Internship Work/Project Description

The project involves developing and refining a 3D AI-trained model that generates accurate facial images, enhancing surgical planning and patient care. With KL Owen Orthodontics as the client, a leader in innovative orthodontic solutions, the project offers a unique opportunity to gain hands-on experience with 3D imaging technologies and explore their applications in healthcare. Additionally, I am learning about advanced AI and machine learning techniques used for training predictive models and their integration with 3D visualization to create practical, real world solutions.

Challenges:

- Acquiring sufficient, high-quality 3D medical image data for AI model training was a key hurdle.
- Ensuring the AI model accurately predicted complex post-dental surgery facial changes posed a significant technical challenge.
- Developing the AI to effectively process and understand intricate 3D spatial data required specialized techniques.
- Establishing reliable methods to evaluate the clinical accuracy and usefulness of the AI predictions was crucial.
- Integrating the 3D visualization tool smoothly into dentists' workflows and existing systems presented usability concerns.
- Adhering to stringent data privacy and security regulations when handling sensitive patient information was paramount.

Outcomes:

- Bridged theoretical understanding of AI, machine learning, and 3D imaging with practical application in a healthcare context.
- Gained hands-on experience in data handling and processing relevant to training AI models for 3D image analysis.
- Developed skills in utilizing specific tools and technologies for 3D modeling and AI/ML development within a project workflow.
- Enhanced analytical skills through working with complex medical image datasets and evaluating AI model performance.
- Gained practical experience in applying AI and 3D visualization techniques to address real-world challenges in dental surgery planning.
- Developed an understanding of the software development lifecycle within a project involving cutting-edge AI and healthcare technologies.

Conclusion:

- My solution-focused internship at Invarsys provided a transformative experience by directly applying AI and machine learning to address a tangible healthcare challenge. The core of my work involved developing a 3D model designed to visualize post-dental surgery outcomes, offering a practical technology-driven solution for KLOwen Orthodontics. This hands-on engagement significantly enhanced my analytical abilities and deepened my understanding of 3D imaging concepts within a problem-solving context. Contributing to a project with the clear aim of improving surgical planning and fostering better patient communication was particularly rewarding and reinforced my passion for utilizing innovative technology for positive impact in the healthcare sector.

Future Work:

- Enhance model accuracy and realism using more data and advanced AI techniques.
- Integrate dynamic factors like healing and swelling for more comprehensive predictions.
- Personalize predictions based on individual patient characteristics and surgical plans.
- Expand applications to other dental procedures and patient education tools.
- Explore real-time visualization and integration with AR/VR technologies.
- Develop a cloud platform for wider accessibility among dental professionals.

THANK YOU