AUGMENTING DENTAL DATASETS FOR RESEARCH USING GENERATIVE ADVERSARIAL NETWORKS

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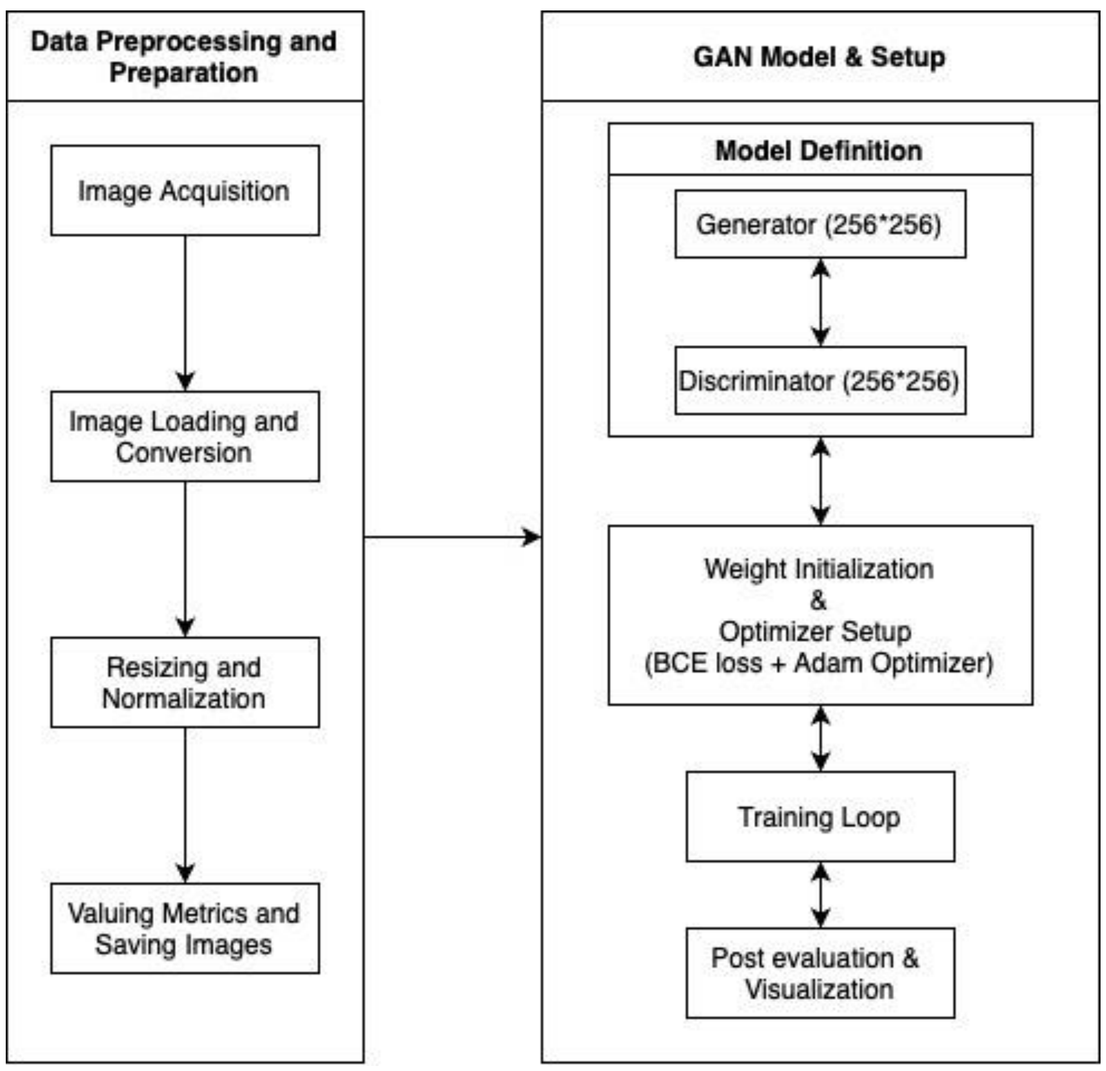
INTRODUCTION

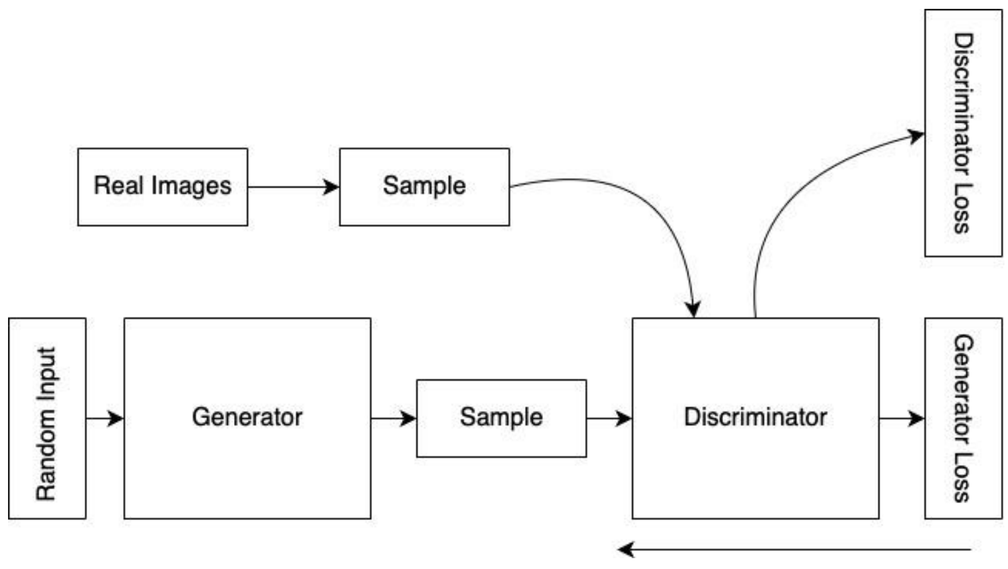
The scarcity of high-quality diversified dental radiographic datasets limits the development of AI-driven diagnostic tools. This project explores the use of Generative Adversarial Networks (GANs) to generate realistic synthetic orthopantomograms (OPGs), addressing data scarcity while ensuring patient privacy.

OBJECTIVES

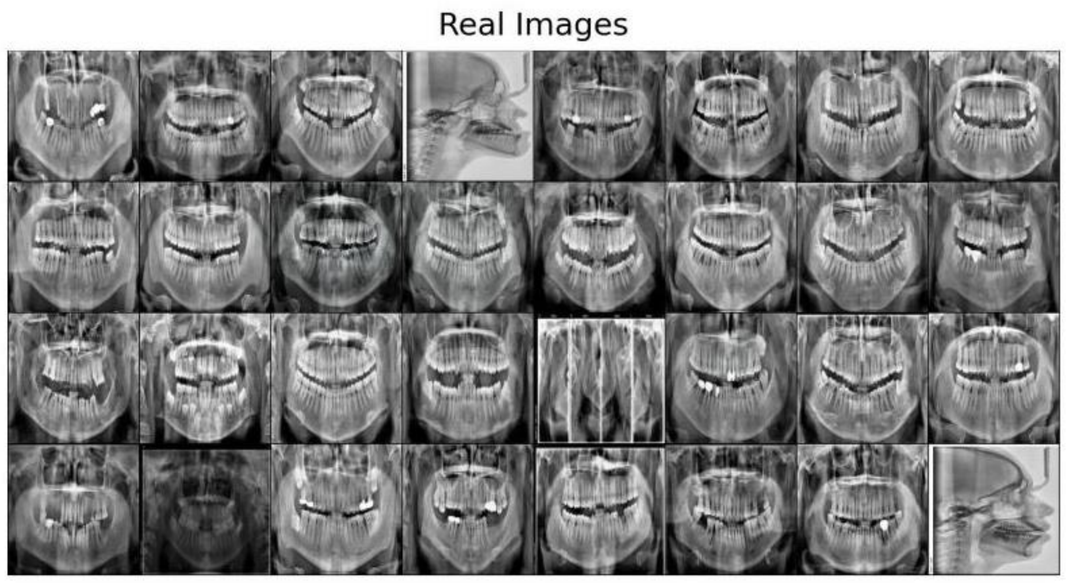
- Develop GAN based models to generate high quality synthetic Orthopantomograms (OPGs).
- Validate synthetic images by comparing them with real OPGs to ensure usability.
- Enhance AI driven dental applications by mitigating data scarcity

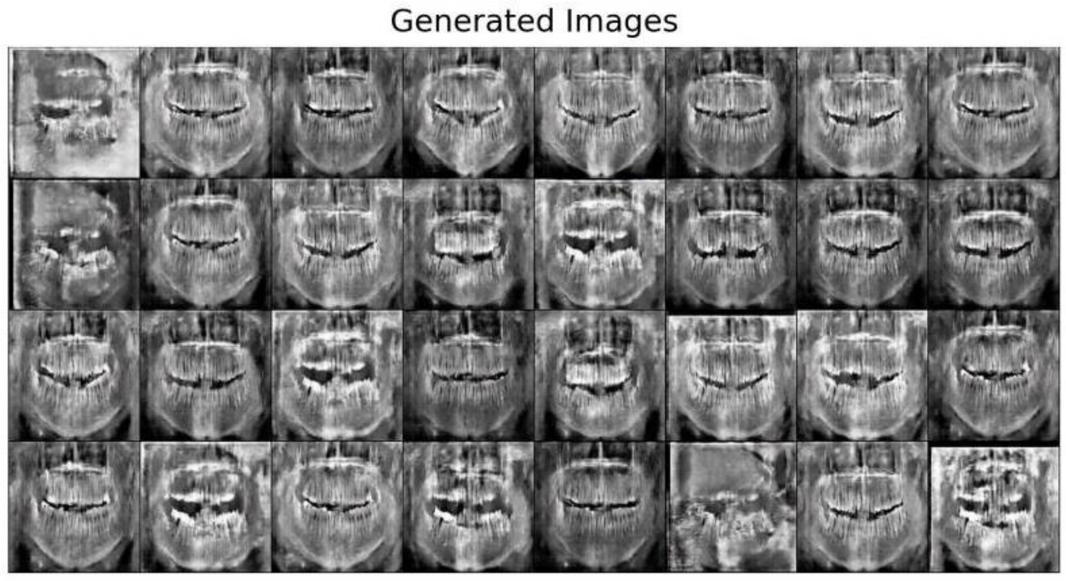
METHODOLOGY

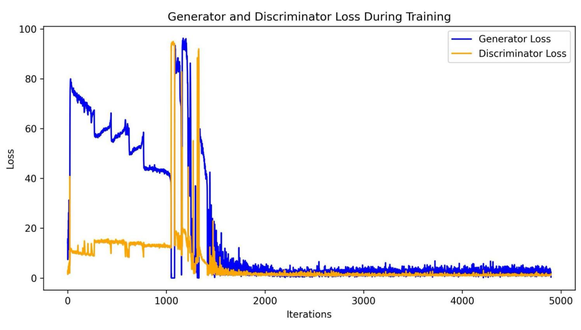


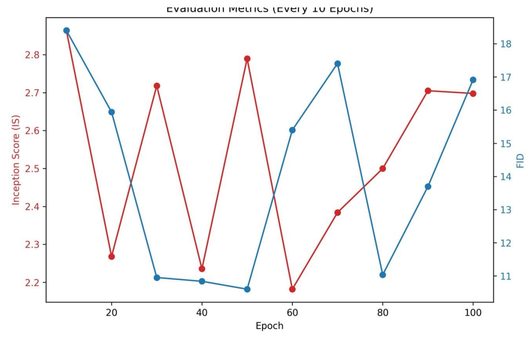


RESULTS









CONCLUSION

Our initial model produced promising results; however, we now aim to achieve higher-fidelity images by leveraging advanced deep learning techniques and models. Our focus moving forward includes:

- Enhancing Image Quality: Refining GAN architectures to generate higher-resolution, more realistic synthetic images.
- Expanding Data Diversity: Training models on a broader range of conditions and pathologies to develop more comprehensive and representative datasets.