

Modeling the Effects of Orthognathic Surgery on Obstructive Sleep Apnea

Principal Investigator
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PROJECT OVERVIEW

This project examines how orthognathic (jaw) surgery affects obstructive sleep apnea (OSA) in pediatric patients, particularly those with cleft lip/palate and dentofacial deformities. Using artificial intelligence and multimodal data integration, the research aims to improve risk identification and surgical planning. By combining imaging, clinical data, and analytics, the project supports more precise and personalized treatment approaches.

The Challenge

OSA can lead to serious long-term health complications and remains difficult to predict in pediatric craniofacial populations. Traditional methods do not allow clinicians to anticipate surgical outcomes or airway improvements.

The Innovation

This work integrates radiographic, photographic, and clinical datasets using AI to identify predictors of OSA and model surgical outcomes. The approach enables data-driven decision making and supports precision medicine

Potential Impact

The research could improve early detection of OSA risk and enable clinicians to better predict which patients will benefit from surgical intervention, ultimately improving pediatric health outcomes.

INSTITUTION

Georgia Institute of
Technology

FUNDING

\$100,000

STATUS

Completed
Research Ongoing

TIMELINE

2023–2025
Extended to 2026