

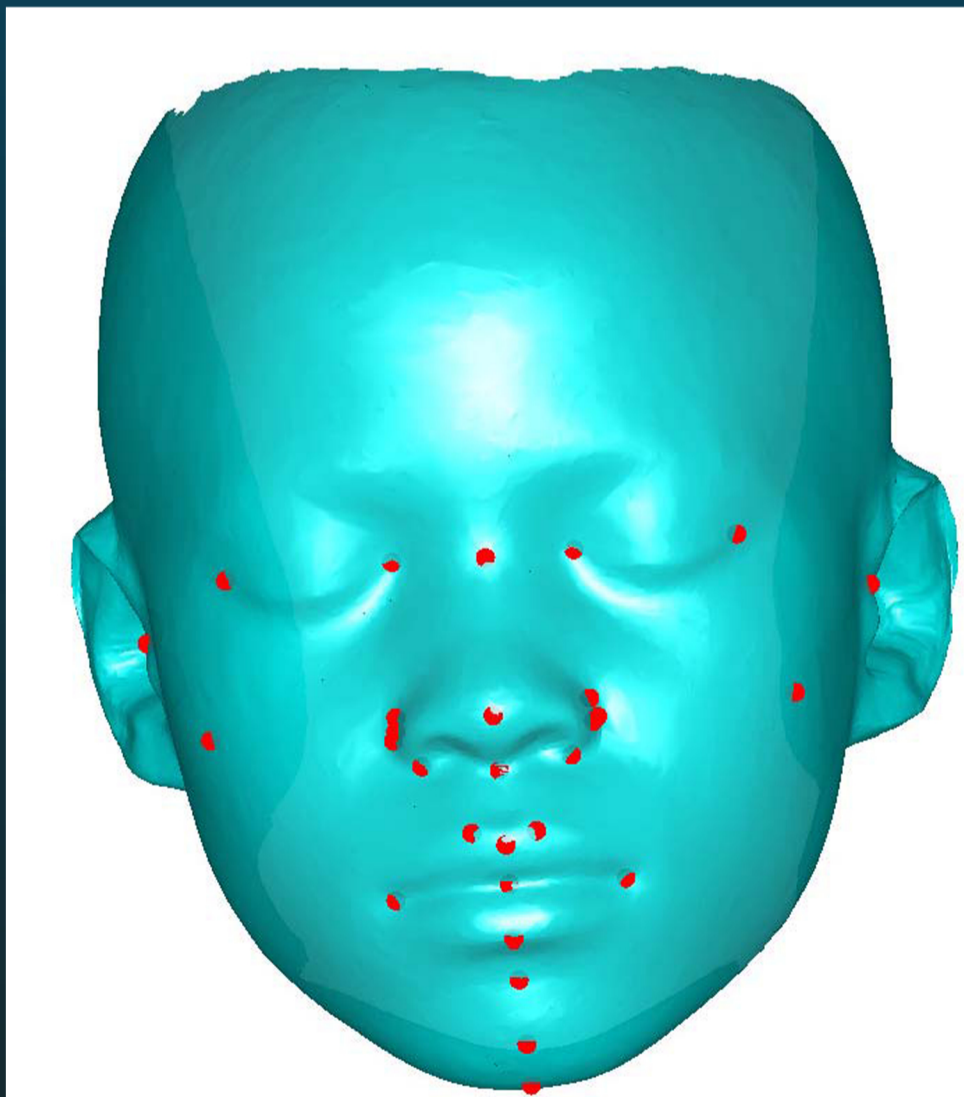
# MAPPING GENETIC DETERMINANTS OF FACIAL SHAPE VARIATION

FSU MATH FELLOW LECTURE

WASHINGTON **MIO**



**Abstract.** Understanding and mapping genetic determinants of phenotypic variation are major challenges in biology and medicine. These problems arise in many contexts, including the investigation of development, inheritance and evolution of phenotypic traits, and studies of the role of genetics in diseases. Shape is a ubiquitous trait whose biological relevance spans multiple scales — from organelles to cells through organs and tissues to entire organisms. Accurate and biologically interpretable shape quantification can provide key insights on fundamental questions about the genetic underpinnings of normal and pathological morphological variation. However, the problem of transforming raw shape data into information and knowledge poses numerous challenges, even more so in large-scale studies. In this talk, I will discuss an ongoing collaborative genome wide association study (GWAS) of human facial shape variation with an emphasis on the morphometric aspects of the study. Time permitting, I also will discuss a technique for learning metrics that enhance existing, but unidentified morphological contrasts among populations. Applications include discrimination of craniofacial dysmorphic syndromes based on 3D facial shape with the long-term goal of developing a tool to aid clinicians in syndrome diagnoses.



101 LOVE BUILDING  
3:35 - 4:30 P.M.

RECEPTION 204-B LOVE 4:30 P.M.  
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